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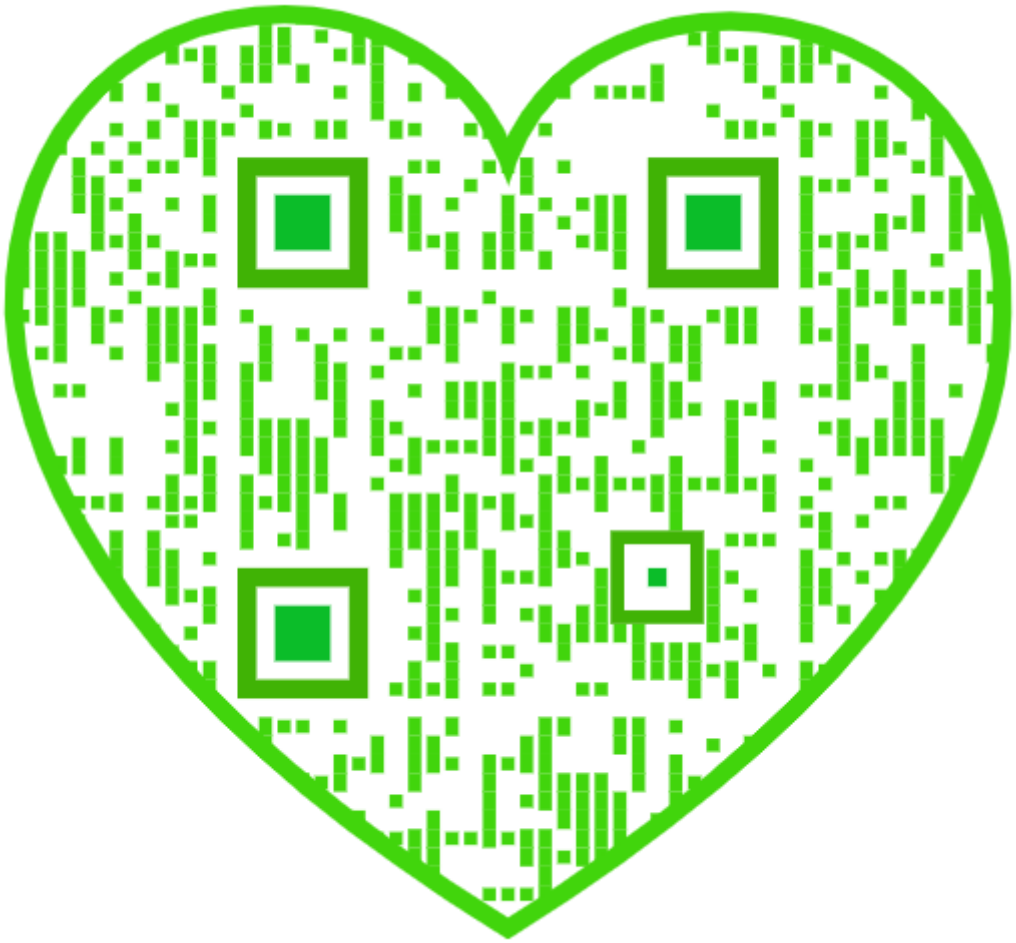

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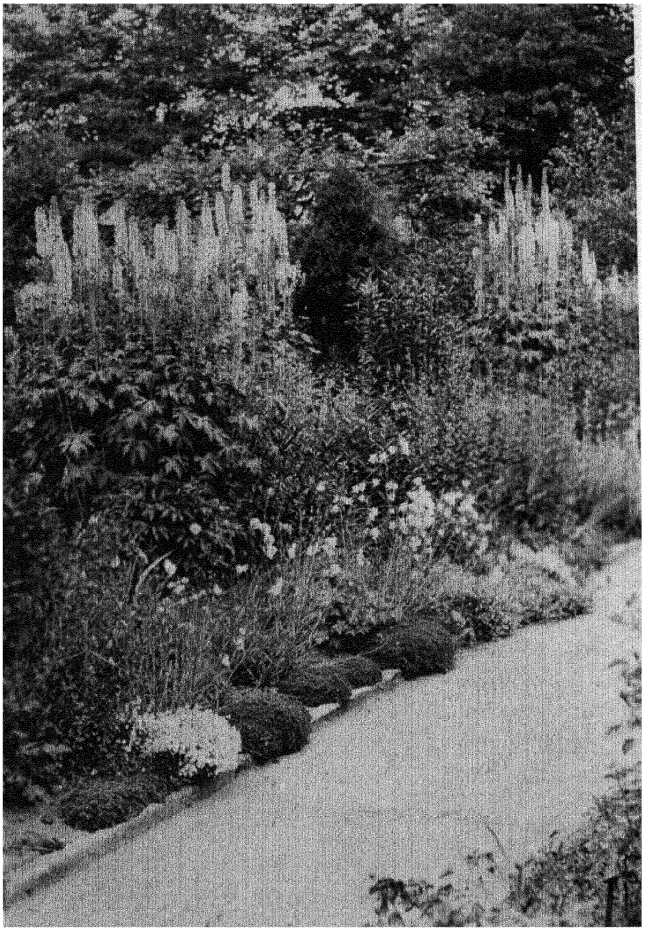
HANDBOOKS OF PRACTICAL GARDENING
EDITED BY HARRY ROBERTS

THE BEGINNER'S BOOK OF GARDENING



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LARKSPURS IN MIXED BORDER

THE BEGINNER'S BOOK OF GARDENING

BY

HARRY ROBERTS

LONDON: JOHN LANE, THE BODLEY HEAD
NEW YORK: JOHN LANE COMPANY. MCMXI
1911

Turnbull & Spears, Printers, Edinburgh

INTRODUCTORY NOTE

THIS book aims at providing a sufficiency of accurate information to enable the gardening beginner to grow ordinary flowers, fruits and vegetables with understanding and success.

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THE BEGINNER'S BOOK OF GARDENING

WHAT PLANTS ARE MADE OF

PLANTS differ much in their constitution, but in nearly all cases the principal ingredient of a living plant is water. The turnip contains more than ninety per cent. of water, and even timber felled in the driest time usually contains nearly half its weight of water. In addition to water most plants contain carbon, oxygen, hydrogen, nitrogen, sulphur, potassium, phosphorus, and other elements. The greater part of the carbon which forms so important a part of every plant is obtained from the atmosphere by means of the leaves. The other elements and the water are derived from the soil by the agency of the roots.

Most garden plants are grown from seed, and it may be wondered in what manner the young plant is able to grow before its leaves and roots have appeared. The solution is that the material other than air and water required for the purpose of germination is contained in the seed itself. The store of nutriment thus supplied is enough to carry the young plant to the stage when its leaves and rootlets are sufficiently developed for it to obtain food for itself.

Seeds are storehouses of concentrated food, which explains their great value as foods for men and animals. Wheat, peas, beans, and rice are common examples.

All plants which live beyond a single season store up

in themselves a certain reserve of nutriment wherewith to start growth in the succeeding year, before the season has sufficiently advanced for them to gather fresh supplies of food. This is especially noticeable in the case of those plants which flower early in the year. The fleshy creeping stems of primroses, the bulbs of crocuses, tulips, and daffodils, the corms of winter aconites and anemones, all offer evidence of this thriftiness of plants.

For plants to absorb food a certain degree of heat is essential. No plant can feed when its temperature is as low as the freezing point, and most plants require a very much higher temperature; nor is any active process possible in the absence of a certain degree of water.

The leaves of a plant are of the utmost importance to its health and life. The under surface and sometimes also the upper surface of each leaf is furnished with little mouths or stomata, to the number of 100 to 100,000 per square inch, and through these stomata carbonic acid gas is absorbed from the atmosphere, in the plant the gas being broken up by the activity of the green colouring matter or chlorophyll into its constituent elements, carbon and oxygen. The oxygen is given off and the carbon is retained to join with other elements derived from the roots to form the compounds of which the plant is built. This action of the leaves is only possible when they are exposed to sunlight.

The other great function of the leaves is to transpire from their surface watery vapour which originally has been absorbed in the liquid form by the root.

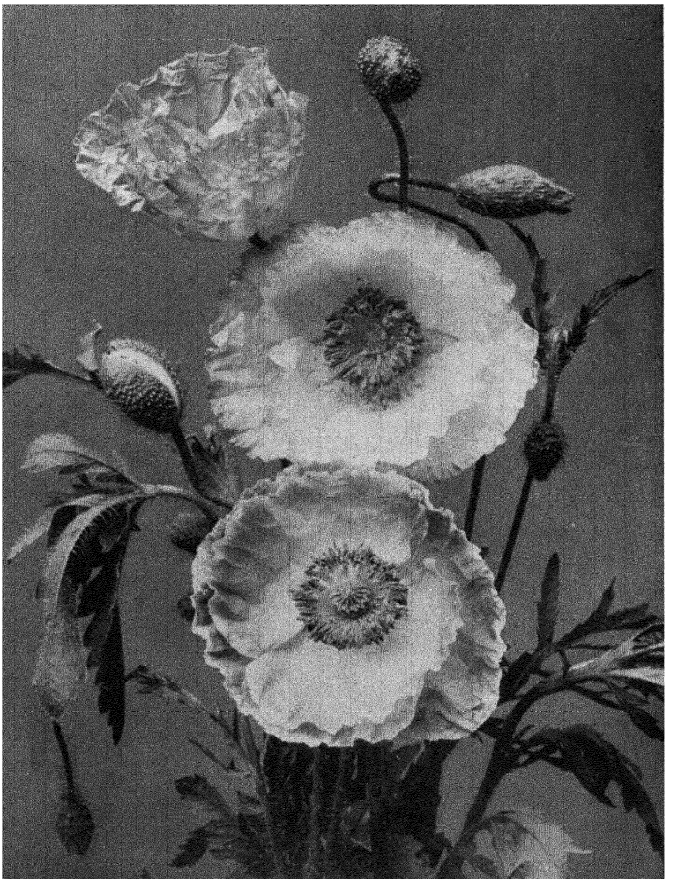
The importance of these processes will be obvious to everyone. As has been said, all the labour of plants, by which from air, water, and a pinch of divers salts scattered in the soil it builds up leaf, stem and roots, and puts together material for seed or bud or bulb, is wrought and wrought only by the green cells which give greenness to leaf and branch and stem. We may say of the plant that

the green cells of the green leaves are the blood thereof. As the food which an animal takes remains a mere burden until it is transmuted into blood, so the material which the roots give to the plant is mere dead food till the cunning toil of a chlorophyll-holding cell has passed into it the quickening sunbeam. Take away from a plant even so much as one green leaf and you rob it of so much of its life-blood.

THE NATURE OF SOIL

First, let us think of what the soil is made, and of how it came into being. Look at the surface of any old stone-built church or house and you will see how every stone is partly covered by moss or lichen or other lowly plant. These plants are growing in soil, formed by the slow action of rain and air on the surface of the walls. Similarly, in the gradual pulverisation and decomposition of rocks has all soil taken its origin. Similarly also, as a rule, have lowly plants been its first offspring, the bodies of which have been afterwards incorporated with their mother soil. By the further action of the weather, coupled with the action of the accompaniments of the decomposition of these early plants, the soil becomes deeper, and becomes also furnished with dead vegetable matter, or humus, without which none of the higher and more developed plants are able to live.

According to the nature of the original rock, and according also to the sort of natural "weathering" or "watering" to which it has been subjected, so will the resultant soil be mainly sand or mainly clay, or an equal mixture of the two. Mixed with these will usually be found a certain amount of little stones or gravel, and a certain amount of dark-coloured humus. In a soil which is nearly all sand, or in one which is nearly all clay, few flowers will thrive, but in what is called a loamy soil—that is, one in which clay and sand are nearly equal—nearly all plants will grow and prosper if other conditions be favourable. The presence of humus in the soil is important in many ways, for not



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only does it contain much that is essential food for plant growth, but also it assists the earth in retaining that moisture without which life is impossible. By its chemical activity, also, it produces useful heat, and liberates stores of food from the mineral soil itself. Therefore it is that we add dead leaves, farmyard manure, seaweed and the like to our garden soil. But, though moisture is essential to the health of plants, the presence of stagnant water is little less fatal than drought. If we find that a hole dug in our gardens to the depth of two feet soon contains water not obtained from above, we may usually assume that drainage is required.

If our soil be too light (*i.e.* sandy) we may improve it by the addition of dried and powdered clay, marl, and organic manure from cowshed or stable: if it be too heavy (*i.e.* containing an excess of clay) we may make it more suitable for our garden use by mixing with it sand, ashes, lime, gritty road-scrapings, or old mortar.

We all know how very much hotter in summer and colder in winter is a starched linen shirt than is one made of flannel or of some cellular open-woven fabric. This is, of course, due to the fact that the former is the better conductor of heat. In like manner, a loose, cellular, "open-woven," porous soil is a much worse conductor of heat than the caked and baked soil which we often see in ill-kept gardens.

The roots of plants like coolness in summer, but in winter they desire all the warmth they can obtain. Hence the desirability of always maintaining the surface of the ground to the depth of an inch or two in a loose, open condition by means of the hoe. This is of value also in checking evaporation, for, by keeping the surface inch of soil loose and fine, the capillary connection between the air and the deeper layers of soil is broken.

Surface mulchings of litter, moss, leaves, or manure act in the same way as does the simpler mulch of hoed soil. Of course the process of top-dressing with leaves or farm-manure, in order to add to the soil the food elements which they contain, is quite a different matter, and cannot be replaced.

Very few gardeners can be said to make anything approaching adequate use of the soil which they cultivate. The majority of amateur gardeners, and not a few professional ones, never get their spade more than a foot or, at the outside, more than eighteen inches below the surface. As a matter of fact, all garden soil should be dug to a minimum depth of two feet, or, preferably, to a depth of three feet when possible.

THE SOWING OF SEEDS

Success in raising plants from seed depends on a combination of several circumstances. The chief of these are the quality of the seed, the provision of the right degree of moisture, the presence of air, and a temperature suitable to the germination of that particular plant. As no conditions can compensate for the absence of vitality in the seeds, it is clearly of the first importance to obtain seeds from a reliable seedsman who has a reputation to lose. For, at any rate as far as the amateur's requirements are concerned, the difference in cost between the very best seeds and those of an indifferent quality is comparatively trivial, when one reflects on the expense and trouble wasted through the use of the latter.

When sowing seeds in the open air, dry and well-drained soil should be selected. It should contain a liberal proportion of gravel or sand, and a small quantity of thoroughly decomposed leaf-mould. There should, as a rule, be no manure used in soil intended for seed-sowing. It is a good plan to pass the top two inches of soil through a sieve, especially in the case of fine seeds. In any event the soil should be thoroughly dug and pulverized to a depth of at least one foot, and the surface raked fine. If this is not done it is practically impossible to provide an even covering for the seeds. Some will be at a depth four or five times that at which others are planted. The depth at which seed should be sown varies with the size of the seed. The smallest seeds should be sown on the surface, the soil having

been previously firmed by means of the back of a spade. A very little fine soil should then be sifted over them through a sieve. This amount of soil should be only sufficient just to cover the seeds. The soil should be well watered before the seeds are sown, and evaporation should be checked by placing over the seed-bed a lath or brush screen. A lath-screen consists of a square frame composed of ordinary laths nailed to one another at right angles, so as to form a kind of chess-board, the interstices between the laths being equal in width to the laths themselves. This screen is laid horizontally upon a light framework three or four inches above the seed-bed. It has the great merit of providing shade and preventing evaporation, while yet allowing free ventilation. A bush- or brush-screen consists of a frame which is covered with twiggy boughs; this also is placed a few inches above the seeds. In the case of larger seeds it is a good general rule to cover them with about twice their own thickness of soil. Large seeds are naturally better able to look after themselves than tiny seeds, which contain so small a store of nourishment for the infant plant. At the same time too much care cannot be exercised in providing a fine and well-drained seed-bed, and some protection from excessive evaporation, in the case of large as well as small seeds. Only experience will enable the gardener accurately to gauge the correct amount of moisture necessary for individual seeds and seedlings, for drought and excessive moisture are the two principal dangers with which seedlings have to contend.

In connection with the subjects of moisture and ventilation, must be mentioned that terrible scourge known as "damping off." This is one of the most common ailments of young seedlings. Close to the surface of the soil the stem of the young plant becomes brown and constricted and soon rots, entailing the death of the

plant, although the top continues to look green and fresh for several days afterwards. Excessive moisture of the surface of the soil, overcrowding, and insufficient ventilation seem to be the conditions which favour the growth of the fungi to which "damping off" is due. Once a plant is attacked treatment is practically hopeless. The only thing to do is to provide more air, and to prick out the healthy plants into fresh soil, under more airy and healthy conditions.

The seeds of all but hardy plants require, in this climate, a certain amount of artificial heat for their germination. Bottom heat is the form in which this is best supplied, and either a hot bed or moderately cool pipes in a greenhouse answer this purpose admirably. The correct temperature varies with the kind of seed, but as a general rule it may be said that no greater heat should be employed than is really required. For indoor sowing, pots or small boxes are usually employed. Shallow boxes or earthen seed-pans are generally to be preferred to deep pots. Thorough drainage should be provided by means of a layer of broken potsherds placed along the bottom of the box. Over this it is a good plan to place a thin layer of peat, and on this should be placed the sifted soil which is to form the seed-bed proper. Good garden loam, to which a little old leaf-mould and a good quantity of sand has been added, constitutes a good soil for indoor seed beds. A useful test for the texture of the soil for seed-sowing is to press a damp portion of it in the hand and then relax the pressure. If unsuitable the soil will remain in a solid cake; if suitable it will crumble and fall apart.

There is one supreme rule in seed-sowing, applicable to large and small seeds alike—it is the rule perhaps most commonly neglected. This rule is to sow thinly so as to allow ample room for the development of each individual seedling.

SOME OTHER METHODS OF PLANT PROPAGATION

Bulbs and Corms

Many plants are increased by means of bulbs, which are a kind of underground bud, the thickened scales or leaves of which are storehouses of nutriment which are used by the young plant before it has produced proper leaves wherewith to accumulate nourishment for itself. Bulbous plants have usually long periods of inactivity, and in a state of nature mostly occur in dry regions or in heavily-wooded districts where active growth is impossible during a great part of the year. Such plants commonly multiply by means of small bulbs or bulbels borne at the top or round the sides of the mother bulb. Lilies, hyacinths, and onions are among the commoner examples of bulbous plants.

Corms differ from bulbs in being solid throughout, and are not divisible into scales or layers as are bulbs. From a gardening point of view, however, they are very similar. The crocus and gladiolus are common examples of corms. Bulbs are for the most part not difficult to manage. Most kinds should be planted in September or October—the earlier the better. Earlier flowering kinds, such as snowdrops and chionadoxas, are best planted about the end of August. Gladioli, however, should be planted in March or April. The depth at which bulbs should be planted naturally varies with the nature of the bulb and the character of the soil. Small bulbs and corms, such as those of the crocus, squill,

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snowdrop, and chionadoxa, should be planted from two to three inches deep, according as the soil is heavy or light. Hyacinths and tulips should be planted about four inches deep, narcissi four to five inches deep, and lilies five to six inches. The distance between the bulbs also varies according to the species. Crocuses and snowdrops should be allowed two inches from plant to plant, tulips and narcissi should have about six inches, and lilies at least a foot. It is a good plan in planting bulbs to place a small quantity of silver sand at the bottom of the hole, and put the bulb on this. Before planting, the soil should be thoroughly dug to a depth of at least two feet, but no fresh manure should be added. Soil which has been well manured for a previous crop is generally suitable. The presence of a certain amount of leaf-mould in the soil is very beneficial in the case of most bulbous plants. A full account of the treatment required by practically every kind of bulbous plant is fully described in the "Book of Bulbs" in the present series of handbooks.

Tubers

Tubers are thickened portions of a root or stem capable of being separated from the parent plant, and if placed under suitable conditions, of producing new plants. Potatoes, dahlias, anemones, and winter aconites are common examples. Tubers of flowering plants should be treated much as bulbs. As a general rule they should be planted about two inches deep, and from four to six inches apart. Dahlias, however, which should be planted in March or April, should be placed at a much greater depth, and should be allowed a space of two or three feet in which to develop.

Offsets and Crowns

An offset is a crown of leaves, generally borne near the surface of the ground, which after a while becomes detached from the parent plant and begins to lead a separate existence. The commonest example of the method of division is afforded by the house-leeks or sempervivums.

Nearly all perennial plants may be increased by simply dividing their root-stock into as many parts as there are eyes or crowns. At the end of every season the root-stock of most perennial plants and bushes develops on each branch a terminal bud. This bud or crown can usually be separated with more or less root attached, and may then be treated as an independent plant. In some cases, as in that of the lily-of-the-valley, these crowns may be separated in the autumn and treated almost exactly as bulbs.

Layers

Many kinds of plants may conveniently be increased by a method known as layering. Shoots or runners from the parent plant fall over and lie on the surface of the ground, and then become either naturally or artificially covered at a certain point by leaves or earth, and emit roots where the joint touches the ground. Eventually this branch separates or may be separated from the parent plant, and forms a new individual. The practice of layering affords one of the simplest methods of propagation in the case of suitable plants, for the young layer plants are nursed by the parent until their roots have become established and they can fend for themselves. Among our native plants which naturally increase themselves in this way the blackberry and strawberry are perhaps the commonest examples. In the garden, plants which it is proposed to increase by

this method are treated as follows:—The branch or branches intended to form the layer are bent down, and crotched sticks are employed to peg them down to the ground. Two or three inches of fine mellow soil should be used to cover a strong bud near the middle of the shoot. In the case of stiff, hard-wooded plants it is a common and good practice to make a cut half-way through the branch on the lower side, obliquely, at the point where it is wished that roots shall form. Spring is the season when layering should be practised, and roots are more readily formed at that time. Shrubs, however, may be equally well layered in the autumn, and carnations, to which this method of propagation is especially applicable, are best layered in July and August, and the layers separated in October. What is known as "mound layering" is valuable in the case of various woody plants, of which large numbers of offsets are required. If a gooseberry bush, for instance, be cut back in the spring almost to the ground, and earth be then heaped over the stool and round the young shoots, numerous roots issue from the base of each of the shoots, and in the course of a year or so the stool may be broken up into a large number of strong young plants.

Pot layering or Chinese layering is a process whereby roots are made to proceed from rigid stems by surrounding them, while in their natural position, with earth or moss. The common practice is to make a small incision in the stem at the point where the root is required, and to place a pot or box which has been cut in two around it, filled with earth. The pot itself should be wrapped in moss to limit evaporation. This method is very useful in the case of leggy old indiarubber plants. The pot is attached high up on the bare stem, and after roots have become freely formed the stem is separated just below the pot and the top part replanted in suitable soil. The old base may then be discarded.

Cuttings

A very large number of plants both woody and herbaceous may be propagated by the method known as cuttage. These cuttings may be made from various parts of the plant, in some cases from the tubers, in others from the roots, in the majority of cases from stems, and occasionally from leaves. A plant derived from the process of cutting exactly reproduces the characteristics of the parent plant. It is thus of the greatest value in multiplying varieties which do not come true from seed. An essential condition of all cuttings is that one or more buds or shoots shall remain upon the portion detached. Only experience will enable one to judge the proper texture and age of a shoot which is likely to succeed as a cutting. If the wood be too old it does not root readily, and even when it does root makes a poor plant. Soft, flabby cuttings, on the other hand, are specially liable to damp off. A good general test of the suitability of a stem for cuttage is to bend it across. If it snaps off cleanly it is suitable for cuttage, if it bends or crushes it is unsuitable. It is a good usual practice to separate the cutting just below a bud, or to break it off at a heel, that is, the point at which it issues from the main stem. In the case of hard-wooded trees and shrubs, such as roses and lilacs, cuttings are best taken from the nearly mature green wood. These are usually taken in summer, and are planted about one and a half inches deep in sandy soil containing leaf-mould and placed in a shaded frame. The soil must be kept moist. In the case of soft plants the soil should be quite three-fourths sharp sand, and the plants should be covered by shaded bell-glasses or other appliances so that they may be kept surrounded by a moist atmosphere until the roots have begun to form. Moderate bottom heat is a great help in the rooting of all kinds of cuttings. Many plants with fleshy leaves, such as the showy

leaved begonias, are easily propagated by means of leat cuttings. The method is simplicity itself. A fully-grown leaf is removed from the plant, laid upon moist sand in a warm frame, the principal ribs pierced by fine pegs, and held thereby in contact with the soil. Roots will form at each of the points of contact, and a corresponding number of new plants thus produced. Gloxinia leaves may be treated in the same way, or the stalk end may be thrust into the soil, after the manner of a stem cutting.

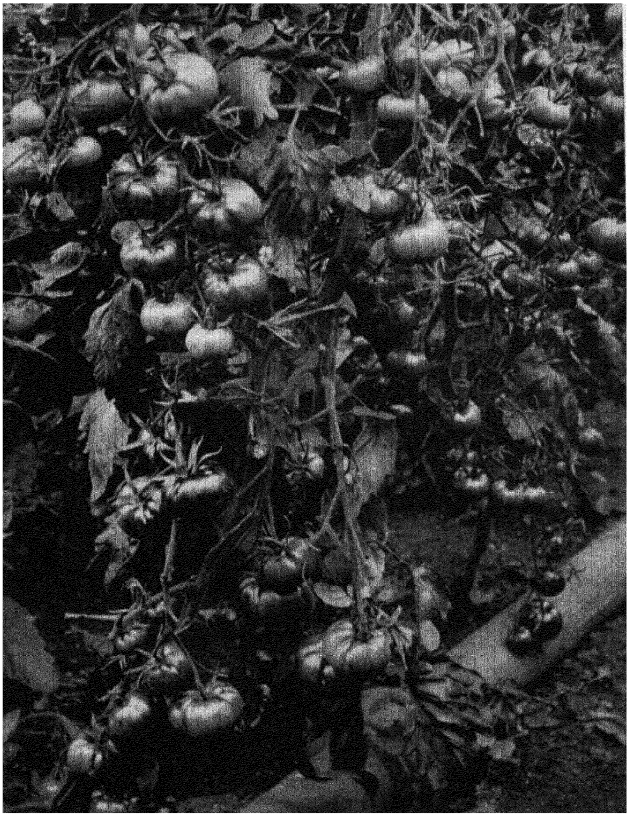
Other plants, again, may be multiplied by root cuttings. The roots are simply cut into lengths of one or two inches and planted. Horse radish is perhaps the commonest example of plants multiplied in this way.

Tubers, again, which contain more than one eye or shoot, may be divided into as many portions as there are eyes. This applies to the potato and dahlia among other plants.

POTTING

MANY plants spend their entire lives grown in pots; others are kept in pots until they reach such an age that they are able to withstand the rigours of the open air. Pots are made of many sizes, from so-called "thimbles," which have a diameter at their tops of two inches, to those known as "twos," the diameter of which is eighteen inches. These various sizes meet the differing requirements of plants and bulbs from the miniature cacti and small seedlings to fruit trees and camellias. Perhaps the most generally useful size is that known as "48's," the diameter of which is four and a half inches. Porous pots only should be used for ordinary purposes, as in glazed pots the soil soon becomes sour, and efficient drainage and ventilation is impossible. New pots should be soaked in water for three or four hours before being used, otherwise they will absorb all the moisture from the soil at the expense of the young plant. Pots that have been previously used should be soaked in hot water and thoroughly scrubbed with a brush inside and out before being again employed. This is necessary, not only for the purpose of opening the pores of the pot, but also for the purpose of getting rid of fungoid growths and spores whose presence would certainly give rise to trouble.

In preparing the pots for the reception of plants the first thing to do is to place at the bottom a piece of potsherd over the central hole, with its convex side upwards. In the case of other than the smallest pots a few additional potsherds should also be placed at the bottom of the pot.



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TOMATO "BARR'S NORTHERN KING"

This is for the purpose of affording adequate drainage. On the top of the crocks it is a good plan to place a thin layer of moss, which prevents the soil from being washed away or from blocking up the drainage. On the moss is placed the soil, in which the plant is to be rooted. The finest soil should be kept for the top inch. The soil or compost must of course vary with individual requirements. For ordinary plants a mixture of three parts of light garden soil or fibrous loam, one part silver sand, and one part leaf-mould forms a good compost. The whole mixture should be passed through a sieve. Potting should generally be effected by placing the plant in the pot with its stem upright in the centre, so that it just rests on soil and stands at the desired height. Add the compost a little at a time, and ram it well down by means of a piece of wood, leaving a depth of at least half an inch between the top of the soil and the top of the pot. The top half-inch of soil should be left loose and not rammed down. Most plants require to be watered immediately after being potted, and plants requiring to be moved from one pot to another should be thoroughly watered half an hour before being removed from the pot. In potting, as in every other kind of planting, it is not sufficient merely to push the root into a hole. The more the roots are spread and arranged the more likely is success to follow.

TRENCHING

THE trenching of a piece of ground intended for the cultivation of fruit, vegetables, or flowers often doubles its value. All garden soil should be trenched at least once every three or four years. Where there is a fair depth of soil the process is carried out as follows:—The plot of ground intended to be dealt with is mapped out, and at one end of it the soil one spade deep and two spits wide is removed and wheeled to the opposite end of the patch. Next the subjacent soil to a depth of a further spit, and one spit only in width, is removed and also wheeled to the far end of the patch, where it is kept in a separate heap. We now have an end trench one spit wide and two spits deep, and a penultimate or end-but-one trench one spit wide and one spit deep. Standing in the trench, the bottom of the end trench is to be broken up by means of a spade, fork, or mattock to a further spade-depth, and left *in situ*. On this should be placed a layer of manure. Next a spade depth of soil from the penultimate trench should be thrown on the manure in the end trench. On this another layer of manure should be placed, and on this should be laid a spade depth of top soil from what will form the third trench. The end trench is now complete, the second trench is two spits deep, and the third trench one spit deep. The bottom of the second trench is to be broken up, as in the case of the end trench, followed by a layer of manure, a spade deep of middle spit from the third trench, another layer of manure, and a spade deep of top spit from the fourth trench. This process

is to be continued until the opposite end of the plot is reached, when the middle and top spit, which have been wheeled to that end, are used for filling in the last two trenches. It will be noticed that the top spit remains the top spit throughout, the middle spit remains the middle spit, and the bottom soil and subsoil, although broken up, are never removed from their position. In the case of shallow soils what is known as bastard trenching is sometimes preferred to the process just described. The principle is the same, but the soil is disturbed to a depth of two spades instead of three. The soil to a depth of one spade and a width of two feet is wheeled from one end of the patch and deposited in a heap at the other end. The subjacent soil is then broken up to a depth of one spade, manure added, and the top soil from the next two feet thrown on top of it. This process is continued until the whole plot is dealt with.

TO MAKE A HOT-BED

HOT-BEDS are of great importance and value in even the smallest garden, not only for the growing of cucumbers and melons and the raising of seeds which require bottom heat for their germination, but also for the production of early crops of lettuce, radishes, carrots, and other choice vegetables. A good supply of fresh stable manure is the essential. It must be fresh—that is to say, it should not be more than a fortnight old. If there is a difficulty in obtaining sufficient stable manure, it may be mixed with about half its bulk of beech or oak leaves, or even lawn mowings or garden refuse. The manure is to be well forked over as soon as it arrives, and any tangled masses shaken apart. It is then to be thrown up into a conical heap, and moistened with water. Leave it for four days, and then turn it completely over again, forming another heap, which should also be left for four days. During this time it should be kept well trodden. At the end of this time the manure will be in a fit condition for the making of the bed. A situation having been chosen in a sunny quarter, the manure is then to be spread in layers on a piece of ground about a foot larger in each direction than the frame which is to cover the bed. As each layer is laid, it is to be well beaten with the fork before the next layer is placed on it. Continue spreading the manure till the back of the bed is about four feet in height and the front about three feet. The whole is to be beaten down firmly, and on this the frame is to be placed. A stick about a yard long is then to be thrust

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obliquely into the centre of the bed, and is to be used as a sort of rough thermometer. Each day the stick should be withdrawn, and the heat of its lower end tested with the hand. As soon as it can be comfortably held the frame is ready for use. If seeds, cuttings, or plants are to be inserted in the hot-bed itself, three inches of light good soil should be spread over the surface of the manure. A hot-bed of this description, made about the middle of March, will retain its heat until midsummer. Hot-beds made in January or February will require to have their own heat supplemented by that afforded by linings, consisting of hot fermenting manure which has been placed in a heap at once, and then arranged in a layer eighteen inches thick around the bed to its full height. In very cold weather this lining will require to be changed about every two or three weeks.

HARDY PERENNIALS

THE characteristic feature of old English gardens, whether attached to cottage or mansion, is what is known as mixed borders of hardy herbaceous plants. Almost every garden enthusiast, whose interest lies outside the exhibition table, is most attached to this feature of his garden.

At every season of the year it contains something of interest. From the flowering of the earliest primrose of the spring to the last of the Michaelmas Daisies there is no time when beautiful and fragrant flowers are absent from the well-planted mixed border. Moreover, the plants, coming up as they do season after season, become a part of the very atmosphere of the garden, and one gets to look for each flower's return in a particular spot.

The mixed border requires comparatively little attention, if it is thoroughly prepared at the commencement, as, beyond weeding and occasional hoeing of the surface, the periodical adding of a little manure, thinning out a plant here, or replacing a plant there, little work is necessary from one autumn to another. The mixed border also offers a home for any chance new plant which comes into our possession.

In preparing a border for herbaceous plants the first thing is to manure it thoroughly and trench it deeply. At least a couple of months before planting, the ground should be trenched to a depth of three feet or more, and a heavy dressing of farmyard manure thoroughly incorporated with the whole depth of soil. Just before

planting a heavy dressing of leaf mould should be forked in and mixed with the top spit. Should the soil be of a heavy clayey character, the addition of some road grit or mortar rubbish is very beneficial.

It is generally wise to re-make a part of a herbaceous border every autumn, so that no one part remains unmade for more than about four years.

Where possible, the border should be not less than three feet wide, but, of course, everything depends upon the space at disposal. The back of the border should be planted with large plants of bold and striking beauty, while towards the front those of lower growth should be planted; at the same time monotony should be avoided by allowing the smaller plants to run back here and there among the taller plants, and an occasional group of plants of moderate height to break the line of the front of the border. The ground should, during the summer at all events, be practically hidden by foliage, but at the same time every plant should have ample room for individual development, and there should be no suggestion of overcrowding. With the strictly herbaceous plants may be used the various hardy flowering bulbs, such as crocuses, snowdrops, and daffodils, which come into flower earlier in the year than the majority of herbaceous plants.

Mr Frank Miles, who was one of the pioneers of this form of gardening, at any rate as we now understand it, held that every six inches of ground should contain its plant so that no six inches of spare ground need obtrude on the eye. His idea may be better understood from his own description.

"Supposing," he said, "the back of the border filled with Delphiniums, Phloxes, and Roses pegged down, and other summer and autumn-blooming plants, and supposing the border to be made as I have described it, I should carpet the ground at the back with spring-

blooming flowers, so that when the Roses are bare and the Delphiniums and Phloxes have not pushed above ground, the border should even then be a blaze of beauty. Crocuses, Snowdrops, Aconites, and Primroses are quite enough for that purpose. The whole space under the Roses I should cover with the common Wood Anemone, and the golden Wood Anemone, and early Cyclamens, and the earliest Dwarf Daffodils. And among the Roses and Paeonies and other medium-sized shrubs, I would put all the taller Lilies, such as require continual shade on their roots; and such as Bardalinum and the Californian Lilies generally, the Japanese, Chinese, and finer American Lilies. Now we come more to the front of the border, and here I would have combinations, such as the great St Bruno's Lily and the delicate hybrid Columbines, Primroses planted over hardy autumn Gladioli, so that when the Primroses are at rest the Gladioli should catch the eye; Carnations and Daffodils, planted so that the Carnations form a maze of blue-green for the delicate creams and oranges of the daffodils. When the Daffodils are gone there are the Carnations in the autumn. A mass of *Iberis correæfolia* happens to have been the very best thing possible for some Lilium Browni to grow through, for the Iberis flowered early and then made a protection for the young growth of the Browni, and then a lovely dark green setting for the infinite beauty of the lily flowers. As for saying this cannot be done, I say that it is nonsense, for the Iberis flowered beautifully under such circumstances, and the Lilies too. If once you get it into your head that no bit of ground ought ever to be seen without flowers or immediate prospect of flowers, heaps of combinations will immediately occur to those conversant with plants, and the deep-rooting habits of most bulbs and the surface-rooting of many herbaceous plants—for instance, Colchicums and Daffodils, with a surface of *Campanula pusilla*

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alba. The big leaves of the Colchicum grow in spring, and there would be nothing but leaves were it not for the masses of Daffodils. By and by the leaves of the Colchicums and Daffodils are dry enough to pull away, and then the Campanula, be it *pusilla*, *alba*, or *turbinata alba*, comes into a sheet of bloom. Before the bloom has passed away the Colchicum blooms begin to push up, and as some of my Colchicums are five inches across, of the richest rose colour, I do not exactly feel that this is a colourless kind of gardening, and as I have a hundred different kinds of Daffodils, this little arrangement will not be without interest in spring.

The Daffodils and Colchicums root deeply and grow mostly in winter, requiring water then, and not in summer, when the Campanula carpet is taking it all. There are some, however, which one must be careful about—the common White Lily, for instance, which wants exposing to the sun in the autumn. I do not mind the exquisite French Poppies among these candidum Lilies, because the Poppies die about August, and then the Lilies get their baking and refuse to show the bare earth, soon covering it all with their leaves. For the extreme front of the border hundreds of combinations will occur—Pansies over Daffodils, Portulaca over Central Asian bulbs, Christmas Roses and Hellebores over the taller Daffodils, with Gladioli, Tritomas, Hepaticas, and autumn-blooming and spring-blooming Cyclamens, with Scillas and Snowdrops. When *Anemone Japonica* is low, up come the taller Tulips, Sylvestris for instance, and higher still out of the dark green leaves come the bejewelled Crown Imperials.

Such a border as this is never dull, never uninteresting, and never flowerless.

To start a herbaceous border, the autumn is usually the best time, and the earlier in the autumn you set about the work, the better. The majority of bulbs are

better planted not later than September, and herbaceous plants are best moved at a time when their old stems have died down and new growth has not commenced. Most hardy perennials are propagated by division of the roots, but many are easily raised from seed. The seed should, as a rule, be thinly sown in April, in pots, the surface of the earth having been previously watered. The seed should be just covered with fine soil and a piece of glass placed over the top to check evaporation. As soon as the seedlings are above ground, the glass should be removed, and when the young plants are fit to handle, they should be transplanted into separate pots, and gradually hardened off. The pots in which the seeds are sown should be placed in a cold frame or an unheated greenhouse, and kept there until the seedlings are fit to transplant.

The number of beautiful herbaceous plants is almost infinite, but we shall give here a short selection of plants arranged according to their height and according to the season in which they flower. These lists will be of some help to the beginner until he has had time and experience to select for himself.

Some few years ago the Royal Horticultural Society, as the result of a large number of inquiries, drew up a list of the most valuable hardy summer perennials, and from their lists the following abridged lists have been prepared :—

The most useful perennial herbaceous border plants, 4 feet high and upwards.

Delphinium—cardinale, formosum vars., Belladonna, hybridum vars.
Rudbeckia—laciniata, maxima, nitida, purpurea.
Kniphofia—caulescens, nobilis, Uvaria.
Thalictrum—aquilegifolium, glaucum.

Althæa rosea vars. (Hollyhocks).
Aconitum—album, autumnale, Napellus.
Pyrethrum uliginosum.
Campanula—lactiflora, latifolia var. eriocarpa, macrantha, pyramidalis.
Spiræa Aruncus.
Phlox decussata.
Ferula tingitana.
Papaver bracteatum.
Doronicum plantagineum excelsum.
Pæonia vars.

The most useful perennial herbaceous border plants, $2\frac{1}{2}$ to 4 feet high.

Campanula—latifolia, persicifolia, p. alba, pyramidalis, urticifolia alba, celtidifolia.
Doronicum—plantagineum excelsum, Clusii.
Spiræa—plamata, venusta, Aruncus.
Papaver—orientale, bracteatum.
Anemone—japonica alba, alpina.
Phlox decussata and vars.
Lychnis chalcedonica.
Hemerocallis—flava, fulva.
Pænoia vars.
Aconitum—japonicum, autumnale, variegatum, Napellus bicolor.
Aquilegia—chrysantha, cœrulea vars.
Iris germanica—pallida, p. dalmatica.
Lilium—bulbiferum, Szovitsianum, candidum.
Galega—officinalis, o. alba.
Pyrethrum—roseum vars.
Eryngium—Oliverianum (amethystinum), gigantum, dichotomum.
Thalictrum aquilegifolium.
Lupinus—nootkatensis, arborous, polyphyllus.

Delphinium "Belladonna."
Achillea—Millefolium rosea, ptarmica pl., serrata pl.

The most useful perennial herbaceous border plants, 9 inches to 2½ feet high.

Campanula—Van Houttei, azurea, grandiflora alba macrantha, Dahurica, persicifolia alba.
Iris — stylosa, germanica vars., Kæmpfori vars., barbatus vars.
Polemonium—Fergussoni, pilosum album, Richardsoni, cœruleum grandiflorum.
Spiræa—palmata, filipendula pl., astilboides.
Geranium — armenum, ibericum, platypetalum, eriostemon.
Dicentra—spectabilis, formosa, eximea.
Aquilegia—cœrulea, Stuarti.
Anemone—japonica alba, alpina.
Trollius—europæus, americanus, asiaticus, napellifolius.
Pæonia—vars. of officinalis, chinensis, edulis, albiflora.
Coreopsis lanceolata.
Ranunculus—amplexicaulis, aconitifolius.
Geum coccineum pl.
Œnothera Youngi.
Carnations, Picotees, Pinks.
Heuchera sanguinea.
Funkia Sieboldi.

The most useful perennial herbaceous border plants, under 9 inches high.

Campanula — turbinata, isophylla, i. alba, G. F. Wilson, pulla, muralis, garganica, hirsuta, pumila, p. alba, carpatica, c. pallida, imbricata.
Anemone—Pulsatilla, palmata, coronaria, fulgens, apennina, blanda, nemorosa.

Hepatica—angulosa, triloba.
Gentiana—acaulis, verna.
Dianthus—alpinus, plumarius, deltoides, annulatus, barbatus magnificus.
Primula—rosea, nivalis, Sieboldi vars., vulgaris vars.
Iberis—superba, coriafolia, sempervirens, Prosti, gibraltarica.
Aubrietia—Hendersoni, Leichtlini, violacea.
Cheiranthus—alpinus, Marchalli.
Silene—Schafta, acaulis aurea, maritima.
Saxifraga—oppositfolia, Camposii, granulata pl., Wallacei.
Alyssum—saxatile reptans, alpestre.
Iris pumila vars.
Phlox—subulata vars., amœna.
Ænothera—eximia, taraxacifolia, macrocarpa.

ANNUALS

WHILST the real interest of a garden must always be associated with its perennial plants—those faithful friends which flower year after year—no one, least of all the beginner, can do without those more showy, though shorter-lived plants which complete their existence in a single season. To furnish a new garden with perennial plants takes time or money, or both, whereas for a shilling or two we may purchase enough seeds of annuals to fill a considerable garden with colour and fragrance in a few months. It is true that we cannot thus obtain flowers during the early months of spring, when it is essential that a plant, in order to flower, may have some hoard of nutriment in bulb or root on which it may draw and thus be independent of the sun's light and heat. We have among the annuals no substitute for the Crocus and the Snowdrop, the winter Aconite and the early Primrose. But from April to October a garden can be kept full of flowers by means of annuals alone. By means of these flowers also we may keep our garden bright and interesting while we are building up our collection of herbaceous plants, of which the garden will largely consist in future years. There are, moreover, many annual flowers which no garden, new or old, can do without. What shall we say of a garden which contains no Mignonette, no Poppies, no Sweet Peas, no Stocks, no Love-in-a-mist? Annual plants, of course, are entirely raised from seeds, and these are to be sown partly in the spring, partly in the autumn. Most should be sown in March or April. Those which are required to bloom

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ROCK GARDEN IN EARLY SUMMER

in early spring should be sown in August and September. Some annuals benefit by being transplanted, others again should be sown where they are to remain. In any case the soil should be carefully prepared, and the seed sown thinly, as explained in the chapter on seed-sowing. When the seedlings appear they should be vigorously thinned, so as to allow each plant space for individual healthy development. In good soil a single plant of Mignonette, for instance, will cover a piece of ground a foot in diameter. Often one sees a dozen crowded and starved plants trying to grow on this area. An important thing to remember in order to extend the flowering period over as many months as possible is to go over the beds every day or two, and cut off all flowers that have withered or are about to wither, before the seed pods have had time to develop. For the object of the plant is to produce seeds, and so to perpetuate its kind, and as long as this end is frustrated it will make repeated efforts to produce more flowers.

It is an excellent rule not to sow all one's seeds at one time, but to sow at intervals so as to produce a more continuous display. Thus, whilst most kinds may be sown early in March to bloom in June and July, others may be sown at intervals right on to the beginning of June, thus yielding successive displays of bloom right on to October. Among the dwarf annuals especially suited for bedding purposes are Sweet Alyssum, which has white sweet-scented flowers; Nemophila, which bears flowers of a brilliant blue; Candytuft or Iberis, with colours varying between white, pink, and purple; and Mignonette, with its unique fragrance. Taller plants are the so-called China Asters, which, by the way, are half hardy, and therefore need to be sown under glass in early March and planted out in May, although in mild seasons seed may be successfully sown in the open air towards the end of April; Dwarf Nasturtiums, of many

colours, every one beautiful; Limnanthes with yellow and white fragrant flowers; the showy Portulaca or Sunflower, which requires a warm, sunny situation; Shirley Poppies; Caucasian Poppies and Opium Poppies; Lupins, blue and white; the annual Larkspurs, which are best sown in autumn; Cornflowers; Clarkia in every shade between rose and white; Eschscholtzias, or California Poppies, orange, yellow and white; Sweet Sultans, especially the white varieties; Salpiglossis, graceful in habit, with flowers in every shade of purple and orange; Coreopsis, with slender stems and flowers of orange and velvety brown; Lavatera, with flowers like a single hollyhock; Phlox Drummondii, which is another half hardy annual and should be sown under glass; the night-scented tobacco plant, growing to over three feet in height, and bearing creamy white flowers which keep closed during the day but open in the evening, when they pour forth their delicious fragrance; and the Chinese or Indian Pinks, with flowers of varied colours—white, scarlet, and pink. There are also many pretty grasses, which are easily raised from seed. There are the quaking grasses, *Briza maxima* and *Briza minima*; the hare's tail grass, *Ligurus ovatus*; the cloud grass, *Agrastis nebulosa*; and the squirrel's tail grass, *Hordeum jubatum*. Closely allied to annuals are the groups of plants known as biennials. These should be treated much after the manner of annuals, the seed being sown in May. These, however, will not bloom during the same summer. The seedlings will require to be planted out in autumn, and flowers will appear during the following spring and summer. Among the plants which may be treated in this way are Canterbury Bells, Evening Primroses, Wallflowers, Snapdragons and Foxgloves.

Not only may we thus raise plants for our beds and borders from seed sown the same season, but among

annuals are also several of our most beautiful climbing plants for the decoration of fences and arches. The Japanese Hop is one of the most rampant of these climbing plants, and will quickly cover an arch or arbour. Then again we have the climbing Nasturtium, the graceful Canary Creeper, and the convolvulus-like Morning Glory or Ipomea, which latter is tender and must be sown over a hot bed in February and gradually hardened off in April. The scarlet-flowered *Tropæoleum lobbianum* is another valuable climber for a sunny situation. But of all annual plants perhaps the most valuable is the Sweet Pea. No flowers are more easy to grow, and none yields a greater reward. Most people make the mistake of sowing their seed much too thickly. Sweet Peas need plenty of space, and not less than five or six inches must be allowed from seed to seed. The ground which is to be devoted to this plant should be deeply dug in the autumn, and well manured. It should be left rough during the winter in order to sweeten the soil. The seed is usually sown in April, about two inches deep, the soil, which had been dug the previous autumn, as just described, being further enriched by placing a layer of old manure about eighteen inches below the surface. Stake the young plants early—that is, soon after they are above ground. In order to obtain earlier flowers old sods of turf should be turned upside down, and in February the seeds should be inserted in the soil about five or six inches apart, and placed in a cool glasshouse or cool frame. These will be fit to plant out in April. The ground they are to occupy should have holes dug out about two feet in depth, of the size of the turves, and at the bottom of each hole a spadeful of manure should be placed. On this should be laid some good garden soil, and on this again the turves, which should come to within an inch of the surface of the ground. A little fine earth should then

be sprinkled between the plants so as to make the whole level. These clumps should be staked at once. The flowers should begin to appear early in June, and providing the seed pods are removed as soon as they form, the flowering season should extend well into September. In buying the seeds some of the newer varieties should be selected. The flowers are larger and the flower stalks longer, and these advantages are gained without any sacrifice of fragrance or grace.

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STEPS IN A ROCK GARDEN

ROSES

EVERYONE who has a garden naturally wishes to grow Roses, and given enthusiasm and perseverance there is no situation where some Roses at least may not be grown. In large towns, especially manufacturing towns, there is considerable difficulty in growing Roses, though even here the selection of the most suitable kinds and the proper preparation of the soil will work wonders. An important part of the culture of Roses in towns consists in the daily use of the syringe in the growing season, so that the leaves may be kept clean and their pores open. The work of the syringe may sometimes require to be supplemented by the use of a soft sponge for removing soot from the leaves. Even where it is found almost impossible to grow Roses in the open air they may be still enjoyed under glass. As to situation, most gardeners are more or less limited in their choice. Low-lying, damp situations should, however, be avoided if possible, for it is certain that the same amount of frost in the bottom of a valley is more injurious than on higher ground, where the air is dryer. In order to succeed, Roses must have a free circulation of air, abundance of sunshine, and yet shelter from strong winds. Especially must they be protected from north-east winds in spring, and in the summer protection from the south-west is little less important. If no wall exists hedges should be planted on the west and north sides of the rose-garden. These should be allowed to grow to the height of six or seven feet, and dwarf hedges of sweet-briar or other low-growing shrub should be formed on

the east and south. Of course most beginners in rose-growing will have their gardens already framed by means of walls, and the necessity for additional protection will, in such cases, be unnecessary. In any case only such Roses should be chosen as are likely to succeed under the conditions we are able to afford.

Whilst in the matter of situation most of us are little able to pick and choose, in the matter of soil we are much more able to pander to the requirements of our Roses. Different classes of Roses thrive in different soils, but as a general rule Roses do best in a strong, deep, rich, greasy loam, resting, not less than two feet down, on a well-drained subsoil of chalk or gravel. Where oaks and elms grow large and wheat crops are heavy there Roses are likely to succeed with the minimum of trouble. Rarely, however, can the rose-grower expect to find his soil naturally such as the Rose most desires. But the beginner may cheer himself by the knowledge that there is not a county in the British Isles without its successful rose-growers and exhibitors, and there is not a soil which cannot be so modified and improved as to produce perfect blooms. The modifications need to be effected according to the original soil with which we have to deal. It used to be thought that a clay soil was the only, or at any rate the best, soil in which to grow Roses. This is by no means the case, for although few soils are more suitable than the rich fertile clay of Colchester, no soil could be much less hopeful than the shaly clay of the Sussex Weald. If our land is of a clayey nature, especially if it be ill-drained, every effort must be made to lighten it and to abolish that putty-like character which makes it so difficult to cultivate. In other words, we must get the particles of soil as separate as possible, and for this purpose clay soil requires to be thoroughly mixed with sand grit, road scrapings, ashes, or strawy manure. If, on the other hand, the soil is

gravelly, there is nothing to be done but to remove the gravel to the depth of two feet, and replace it by good heavy loam, although Tea Roses often do excellently in gravel soil with which stable manure has been liberally incorporated, provided a little heavier soil be placed about their roots in planting. Sandy soils require treating in the same way as gravel soils—that is, the top two or three feet should be completely removed and replaced by strong rich loam. Mr Harkness, one of our most successful rose-growers, makes his rose bed on the following lines :—The beds are made five feet wide. This will admit three rows of plants in each, and will be found a convenient width, as it allows each plant to be attended to without stepping on the soil. Commence by removing the whole of the soil out of the first bed to the depth of from twelve to fifteen inches, the full width of the bed, and about four feet of its length, placing this at the other end of last bed ready to fill in the last trench. Having done so, fill in with a layer, grass downwards, of good meadow or roadside turf, then a layer four inches thick of partly decomposed manure, then about six inches of the soil of the next trench. Over this place about two or three inches of well-rotted manure, which, with the remaining six inches of soil, will bring the bed to its required height. Raise the beds rather than lower them; they will be warmer and drier than if sunk below the natural level, or if too high some of the poorest soil may be carted away. Each bed, if parallel with each other, can be made by commencing at alternate ends, the soil taken from the first trench will complete the last bed, and labour will thus be saved.

A cheap and effective method of applying clay is, in early autumn, to spread it over the surface of the soil to the depth of two or three inches, and allow it to lie until it crumbles down through frost and

exposure. Then it should be trenched in to form a foundation of at least fifteen inches below the surface. There it will absorb and retain moisture, afford a cool feeding ground for the roots of the Rose in hot, dry weather, and in wet weather will arrest and store up till wanted the fertilising gases which the rain washes down. Where clay is not obtainable, additional supplies of manure will be necessary. Those most lasting and cooling, such as cow and pig dung, are best.

The beginner in rose-growing should begin his preparations for planting while Roses are yet in bloom. He should then visit a collection, either in a private garden or in a nursery, and decide what varieties he intends to order. He must not, however, decide this without reference to the conditions under which his Roses will be grown. The Roses should actually be ordered in October. In this way not only are the best plants secured, but also the soil will be still warm enough to cause the plants to make fresh roots before the winter becomes severe. Immediately the plants are received from the nursery the bundles should be opened and the roots placed in a shallow trench and at once covered with soil, and the latter well watered. If, however, the ground is frozen when the plants arrive, the bundles should be left unopened and placed in a cool frost-proof cellar or other room until the ground thaws. The actual planting is of great importance. The soil having been prepared and the beds having been made ready as described above, the planting should be performed according to the following directions, epitomised from the admirable "Hints on Planting Roses," issued by the National Rose Society:—Some of the plants should be carefully removed from the trench where they had been "heeled in," and brought to the side of the bed they are intended to occupy. A mat should always be thrown over them to keep their roots from drying by

exposure to sun or wind. A hole should then be dug about a foot square, and of sufficient depth, in the case of dwarf (or "bush") Roses, to allow the junction of the stock and scion to be about an inch below the surface of the bed when the operation is completed. In the case of standards the hole should be six inches deep. A plant should then be taken from beneath the mat, sprinkled with water, and held with the left hand in the centre of the hole, while with the right the roots are spread out horizontally and evenly in it, taking care that the roots cross each other as little as possible. Some of the finest soil available should next be sprinkled over the roots so as just to cover them. Over this light covering place three inches more soil, which may then be trodden in and the hole filled up. Tread the soil firmly round the plant when this has been done. FIRM PLANTING is very necessary for the future well-being of Roses.

In the case of heavy soils, or where the ground remains for any length of time in too wet a condition for the planting of Roses to be satisfactorily carried out, it is an excellent plan to secure some light gritty soil, such as the clippings obtained from the sides of roads when the grass edges are being cut. A spadeful of this material may then with advantage be placed both above and beneath the roots instead of the natural soil. Soil of this character may be firmly trodden without caking together, and the grit in it encourages the early formation of roots.

When planting Roses singly on lawns or elsewhere, the same method should be followed as when inserting them in beds.

Previous to planting Roses singly on lawns or in borders a hole should be dug for each, eighteen inches square and eighteen inches deep. The soil removed from the holes should be well mixed with one-fourth of its quantity of well-decayed manure before being restored to them. If the soil be found poor and unsuitable, better

soil from another part of the garden or some turfy loam should be substituted. No grass should be allowed to grow within at least six inches of the stem of Standard Roses planted on lawns.

In the matter of manures, Roses are somewhat gross feeders. Their needs, like those of most other plants, are of two kinds: firstly, they require in the soil the presence of a quantity of that decomposed organic material known as humus, which gives to old garden soil its dark colour and unctuous feel; secondly, they require certain mineral ingredients, notably those known as nitrates and phosphates. Good farmyard manure to a large extent meets both these needs, though it is often desirable to supplement it by certain chemical manures as presently described. Old garden soil often contains already a sufficiency of humus, and better results are then frequently yielded by artificial manures, combined with annual top-dressings of farmyard manure or leaf mould. When preparing the ground for rose planting the addition of a dressing of quarter-inch bones gives good results. The best time to add artificial manures to already established Roses is in February, an equal mixture of superphosphate of lime and nitrate of potash being applied to the previously-hoed surface at the rate of a quarter of a pound per square yard. A very important part of the cultivation of Roses lies in keeping the surface of the ground pulverised to a depth of at least an inch at all seasons of the year. This not only helps to maintain an even temperature for the roots, but also tends to check undue evaporation.

The pruning of Roses, although commonly considered as a very esoteric process, is really simplicity itself. March is probably the best month for pruning all Roses except Teas and Noisettes. In the care of climbing Roses there should not be much cutting back. All dead and weakly wood should be removed altogether, and the

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IMPERIAL PÆONIES

minimum number of ripe shoots having been selected to remain, the rest should be cut right away. Banksian Roses, however, must be pruned very lightly, only the dead wood being removed, and the strong shoots slightly shortened. Summer Roses and Hybrid Perpetuals should be pruned much more severely. All dead wood should be removed, and all old wood which is becoming weakly in comparison with the rest of the plant. All weak and sappy growths should also be removed, and the strong growths which remain should be cut back to a bud growing outwards about eight inches from the ground. The weaklier the variety the fewer buds should be left, and the more severe should be the pruning. Tea Roses and Noisettes should be pruned in April or May. In this case but little cutting is required. The dead and weakly growths should be removed, and any tendency to "legginess" should be corrected. Sweet Briars and other single Roses need no pruning whatever. As to stocks, it is generally better to purchase Roses grown on the briar stock or on their own roots, and insistence should be laid on the plant having plenty of fibrous roots.

SMALL TOWN GARDENS

GARDENERS who live in the suburbs of a town can, by a little extra care and perseverance, grow flowers, fruit, and vegetables almost as well as those who live in the remote country. But there are many who are placed actually in the town itself, and whose gardens consist merely of little back-yards almost surrounded by bricks and mortar; those little plots which Dickens described as "enclosed bits of dirt." Yet the keen and enthusiastic gardener can convert even a little slum back-yard into a real garden, which shall contain beautiful flowers in eight months out of the twelve. Of course in this case a good deal of preliminary trouble must be taken. To plant flowers in the sour, caked mixture of bricks, concrete, and decomposed cabbage which constitutes the "soil" of most back-yards is mere waste of labour. The first thing to do is to dig and break up the soil to a depth of at least two and a half feet. For this purpose a pickaxe will probably be necessary, as well as a spade. At least half of this soil must be taken away, and good soil substituted. The best soil to add consists of sods of turf, of which a load may be sometimes purchased cheaply from a suburban builder when he is clearing new ground for building purposes. Also a really liberal dressing of stable manure must be thoroughly incorporated with the soil. Two wheelbarrow loads of manure should be allowed to each rod of ground. Unless this preparation of the soil is thoroughly done no good results can be looked for. The work should be done in the autumn, and the

ground left till early in the following spring, when it should again be thoroughly dug over and levelled. In the matter of planning such a little garden there is a good deal of choice. Different individuals are interested in different groups of plants, and each will endeavour to meet the requirements of the subjects of his hobby. Thus one may be interested in Alpine plants, and will convert his back garden into a rock garden—by no means a bad use to make of a small space; another may aim at the ideal of the country cottage garden. In any case simplicity should be the keynote of its arrangement. For the ordinary little oblong strip at the back of small town houses the best effect is generally given by a somewhat formal scheme. A small central brick path with a border on either side is as good an arrangement as any, or, where the patch is somewhat wider, say more than twelve feet, there may be a small central rectangular bed separated by a narrow brick path from a border round three sides of the garden. So much for the planning of the garden and the preparation of its soil. Experience will show what plants will thrive. With proper care it is surprising how many plants will grow and prosper even in the very centre of a large town. All walls and palings should as far as possible be draped with climbing plants. Walls facing north or east may be covered with Virginian Creeper or Ivy. Those facing south or west may be clothed with Clematis or Jasmine. Annual climbers such as Canary Creepers, Japanese Hop, and Ipomea are of the greatest value for hiding unsightly fences. The beginner should not attempt to grow Tea or Hybrid Perpetual Roses, though the Japanese Roses and the various Briars do well. Do not be content with the dull plants usually grown in little town gardens. Persevere and you will be surprised how few flowers fail if properly treated. Here are a few names which may help the beginner. Among

bulbs which should be planted in the autumn are Crocuses, Snowdrops, Scillas, English and Spanish Irises, Tulips and Daffodils, and among other perennial plants are Goatsrue, Chrysanthemums, Carnations, Pinks, German Irises, Polyanthuses, Pansies, and Stocks. Keep the surface of the ground from caking by stirring it every week or two with a small hoe. During the summer months water thoroughly every evening. Keep the leaves as clean as possible by means of the garden syringe. Watch for snails and slugs, and destroy them.

TO MAKE A LAWN

LAWNS may be made either by laying turf or by sowing seed. The former is the quicker process, the latter the cheaper and better. In preparing a piece of ground for a lawn the first thing is to provide efficient drainage. The land may be naturally well drained, but if not, trenches about a foot wide should be dug across the ground at intervals of about twelve feet, to a depth of about a foot below the subsoil. These trenches are to be filled with stones or cinders to the level of the top of the subsoil, and the soil replaced. Any excess moisture will drain into these trenches. The ground should then be thoroughly dug, a dressing of old manure well incorporated with it, and the surface carefully levelled. The turves, which must be cut to a uniform depth of about three inches, may be laid any time between October and April. When the whole is laid the turves are to be beaten well down with the lawn beater, and any small spaces between the turves filled in with fine soil. Every day the lawn must be rolled and watered, and as soon as the grass begins to grow it should be mown with a scythe. When the lawn is to be made from seed the soil should be prepared exactly as above advised. The seed should be sown thickly—a pound of seed being allowed to every thirty square yards of ground—about the middle of April. The ground should have been previously rolled, and then scratched over with a rake. After the seed is sown, finely sifted soil should be scattered evenly by hand at the rate of three bushels for every thirty square yards. The ground is then to be thoroughly rolled.

Until the grass appears birds must be kept off by means of cotton or other scares. After the grass is two inches in height it should be cut with a scythe once weekly. A month or two later the ground should be rolled, and from that time onwards a roller mowing machine should be used frequently.

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MIXED BORDER IN AUGUST

ROCK OR ALPINE GARDENS

THERE are few ways of making a small garden interesting more effective than by the construction of a simple rock garden for the growth of the smaller Alpine plants, and in the case of larger gardens a properly made rock garden always forms one of its most interesting features. The first thing for the beginner to get out of his mind, however, is the notion that the rock garden proper has any relation to the heap of refuse, broken pottery, shells, and clinkers to which the name of "rockery" is commonly applied. A rock garden, whether small or big, is merely a suitable home for the cultivation of certain plants whose roots do best when allowed to nestle against or creep under stones more or less buried in the ground. In the "rockery," as it is generally known, the aim seems to be to produce the most showy and hideous collection of stones, shells, and fragments obtainable; in the rock garden the first thought is the health of the plants which are to occupy it.

The object of the stones is to retain moisture for the roots, and at the same time to keep the stems of the plants dry. The usual mistake made in the construction of rock gardens is to make a stone structure, and on this to place a more or less shallow layer of soil. It is commonly thought that these little plants require but very shallow soil. A depression in the surface of a stone is occupied with a cupful of earth, and this is thought to provide a comfortable home for any Alpine plant you may care to plant there. As these plants occur in a

state of nature they often appear to be growing on the very surface of the rock itself, yet if we break away a part of the rock on whose surface they appear to be rooted, we shall find there rootlets penetrating for inches, often for feet, through minute cracks and crevices scarcely visible to the eye. As a rule, Alpines do not require rich soil, but depth of soil they must have. Only in this way are they able to be afforded that uniformity of temperature which is one of the essentials of their existence. Three feet deep is not too much for most kinds of Alpine plants, and for the majority of species this soil should consist of a mixture of loam, sand, leaf mould, peat, and broken grit. Indeed, the most satisfactory type of rock garden for a small area is to construct what is practically a slightly raised border almost buried in which are placed irregular masses of local rock. Only rough pieces of stone, preferably the stone of the locality, should be used. Limestone and sandstone are especially suitable. Burnt bricks, burrs, and shells should be carefully avoided. The pieces of stone should, as we have said, be almost buried in the soil, and the projecting parts should appear to be a natural outcrop of stone. In any case a rockery should be broad and with little exposure at the sides; not high and pointed, as except in the case of a few plants the more exposure to the sun the better. Good drainage is essential, and this is one of the reasons why a rock garden should be raised somewhat above the general level of the surrounding ground. At the same time there must be no hollows in the middle of the rock garden, or the plant roots will be dried up. There must also be facilities for an efficient supply of water throughout the summer months. It is a good plan to mix with the soil a good proportion of grit or coarse sandstone, some growers even using as much as one half. The tendency to "damp off" in winter, which is the

cause of the death of so many Alpine plants, is largely diminished by this means.

The best aspect for Alpine plants is east, and west is the worst. Wherever there is a steep bank facing south or east we have to hand a rock garden suitable for the growth of Alpine plants almost ready to our hands. All that is required is to bury a number of blocks of stone to about three-quarters of their depth.

In all cases where the elevation of the ground has to be effected artificially the proper way is to build up a mass of soil, putting in a rock here and there as the work proceeds. This is far better than to build up a structure of stones and fill up the cracks of the soil afterwards. Among the best of rock gardens are old walls, and many plants that are grown with the greatest difficulty in borders or pots may be grown with great ease on an old stone or brick wall, especially that type of wall in which no mortar has been used.

Such plants as Aubrietia, Cheddar Pinks, Alpine Wallflowers, Toadflax, and Stonecrops are easily grown in this way. A little soil should be pushed in the cracks with their roots at the time of planting.

To sum up, the more a rock garden looks like a rough piece of stony ground and the less it looks like a rockery the better.

The following is a short list of a few of the more valuable rock plants with which a beginner may experiment:—

Acæna microphylla. A little plant which forms a dense carpet covered with curious red spikes of flowers.

Achillea clavennæ. A white downy plant which is interesting throughout the year.

Achillea tomentosa. Another downy-leaf plant bearing bright yellow flowers.

Adonis Vernalis, which bears bright yellow flowers in spring.

Alyssum alpestre. A grey-leaved plant, studded with tiny white hairs and bearing numerous bright yellow flowers.

Alyssum argenteum. Somewhat similar to the last.

Androsace Carnea, bearing pretty rose flowers on twiggy stems.

Androsace Lanuginosa. One of the prettiest of all Alpine plants, with trailing silvery leaves and lilac and white flowers with yellow eyes.

Androsace sarmentosa.

Arenaria balearica, which soon spreads into patches of highly green leaves.

Aubrietia, of various kinds, bearing flowers of every shade of purple.

Arabis Albida, bearing white flowers in the very early spring.

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CERASTIUM TOMENTOSUM

BEAUTIFUL WINTER PLANTS

At most seasons of the year the choice of beautiful plants is so large that the only trouble is to eliminate those which we can best do without, but in winter there is no such plethora, still there is a considerable number of herbaceous plants, shrubs, and trees which yield beautiful flowers, foliage, and berries almost in the very heart of winter.

Among bulbous plants we have several of the beautiful Irises which succeed in the open in sheltered situations, especially in the South of England. Among these are: *Iris reticulata*, whose flowers smell like violets; *Iris histriades*; the green and black flowered *Iris tuberosa*; *Iris alata*, and the fragrant lilac-flowered *Iris stylosa*. Most of these like a well-drained soil under a south wall, and should be planted about three inches deep with a handful of fine brick dust around the bulbs.

Then we have the Snowdrops, the Crocuses, the Winter Aconites, Siberian Squills, Anemone Blanda, the Hepatica, the Chionodoxa, the Winter Cyclamen, and the Winter Hyacinth.

The Christmas Roses and their successors, the Lenten Roses, can be made to provide a succession of flowers throughout the winter months. They all possess not only beautiful flowers, but handsome foliage. They are very easy to grow, provided they are left alone in a deep rich soil, preferably in dense shade. The flowers should be saved from being soiled by splashes of mud, by having moss placed on the earth beneath them.

In waste spots, such as shady places under trees, where few things will grow, the Winter Coltsfoot will yield its fragrant, though insignificant, flowers early in January. It should not, however, be introduced into the garden proper, or there will be trouble in getting rid of it. In sheltered spots the Common Primrose, in its coloured varieties, often flowers in sheltered positions early in January, and other species of Primula, noticeably the Caucasian Primrose and *Primula denticulata* bear their flowers in the very depth of winter.

On dry sheltered south borders the Spring Starflower, *Tritelia uniflora*, produces its lilac flowers early in January. During dull weather the flowers remain closed, but every time the sun appears they open wide.

Several of the Periwinkles flower during December and January, the earliest being the lilac-flowered *Vinca acutiloba.*

In sunny spots several of the Saxifrages may be had in flower before the middle of February. The earliest is the little *Saxifraga burseriana*, which bears large white flowers on very short stalks. Next to flower is the yellow *Saxifraga apiculata.*

Two other flowering winter herbs, not so often seen as one would wish, are the Winter Adonis, which bears yellow anemone-like flowers on stems about a foot high, early in February, and the Gold Coin or Hacquetia, a dwarf plant, whose flowers are surrounded by pale green leaves, during February and March.

Among shrubs, several of the most beautiful bear their flowers in the earliest months of the year. The Winter Sweet, or Sweet Shrub, often opens its fragrant yellow flowers within a fortnight after Christmas. As this plant is readily affected by frost, it is better to grow it against the wall. The Winter Sweet is useful for cutting, as a single spray will scent any room. As soon

as it has flowered, the young shoots should be pruned back to the old branches. The Yellow Jasmine is also valuable as a wall shrub.

In March all the strongest shoots that have last flowered should be tied in, and the others should be cut out. The Jasmine flowers are also very fragrant.

Another group of winter flowering shrubs is that of Wych-hazels. These bear their scented flowers from December onwards: the finest species is *Hamamelis Japonica arborea.* It bears beautiful flowers, with bright yellow petals and red centres, early in January. The flowers remaining in perfection for many weeks, often the entire plant is studded with these flowers.

The Cornelian Cherry, or *Cornus mas*, bears thousands of small yellow flowers in January or February.

The scarlet flowers of the Japanese Quince, *Pyrus Japonica*, appear in January, and the orange red flowers of *Cydonia mauleii* and the large white flowers of *Cydonia nivalis* also appear at the beginning of the year.

At any rate in the South of England the Laurustinus is of great value in winter, but as it will not stand hard frost it is not much good trying to grow it in northern or exposed situations.

The shrubby Honeysuckles, *Lonicera fragrantissima* and *Lonicera standishi*, are easy to grow, as also are the Mezerion, the double Furze, and the evergreen *Garrya eliptica.*

Several of the Heaths again flower in winter. Of these *Erica carnea*, with compact low cushions of green leaves and pale red flowers, and its white variety, are the best.

Flowers, however, are not the only beautiful part of a plant. Many trees and shrubs are well worth growing for the berries which cover them in the winter-time. The Firethorn, *Cratægus pyracantha*, which bears

clusters of bright red berries, often lasting right through the winter; the various Cotoneasters; several species of Pernettya; the Sea Buckthorn, *Hippophæ rahmnoides*; *Aucuba Japonica*; the various Hollies; the Strawberry Trees, especially *Arbutus unedo*; the White-berried Snowberry; the Purple-berried Gaultheria, and the Mistletoe are among the most valuable winter-berried shrubs.

Other shrubs should be grown on account of their beautiful stem colouring in winter. *Rubus biflorus*, with stems as white as whitewash, the grey-stemmed Violet Willow, the red-stemmed Cardinal Willow, several of the Dogwoods, the yellow-twigged Lime, *Spiræa Douglasii* and *Deutzia crenata* are among the more notable of these.

Nor should evergreens and evergreys be forgotten. Of evergreen trees and shrubs Yew, Hollies, Box, Tree Ivys, Barberries, Sand Myrtles, Dwarf Partridge Berries, and *Olearia Haasti* are among the most useful.

Among the evergrey plants may be named Lavender, Rosemary, Pinks, Carnations, Mulleins, Alyssum, Lavender Cotton, *Stachys chrysantha*, *Achillea umbellata*, *Achillea moschata*, *Silene maritima*, *Hieraceum villosum*, *H. gymnocephalus*, Cistus (of sorts), *Artemisia lanata*, *Agrostemma*, *Senecio leucophyllus*, *Teucrum aureum*, *Cerastium tomentosum*, *Arabis variegata*, *Gypsophilum repens*, *Festuca glauca*, *Sedum Turkestanicum*, *Olearia insignis*, *Agrostemma coronaria*, *Onopordon arabicum*.

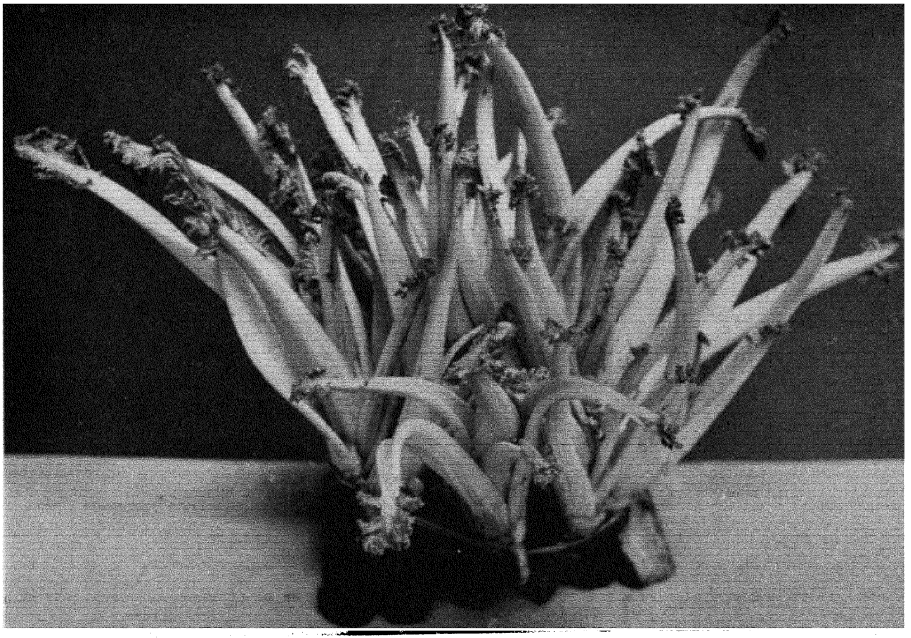
THE PLANTING OF FRUIT TREES

Novices in fruit-growing are advised to write to the Royal Horticultural Society, Victoria Street, London, enclosing a penny stamp, in return for which they will receive a copy of an excellent little pamphlet entitled "Fruits for Cottagers." Here we can but epitomise a few of the more important rules to be observed in the planting of fruit trees. The soil should be dug to a depth of at least two feet; the bottom soil, however, should not be brought to the surface. A little garden soil, which has been well manured for a previous crop, may well be incorporated with the top six inches. No manure should be added at the time of planting. If the roots of the young plants are in any way torn or jagged, the torn portions should be cut off cleanly with a sharp knife. A hole should be ready to receive the tree of at least three feet in diameter, and of such a depth that the highest roots will be about three inches below the surface when the planting is finished. First spread out the lowest roots carefully, and scatter a little fine earth over them; then spread out the roots next above these, and add more fine soil; then those above these, and so on, giving a little shake now and then to let the soil run in between the fine roots. When all the roots are spread out and covered, give the tree a good shake, add a little more soil, and then tread it in firmly. Fill up the hole two or three inches above the level of the surrounding hole. Put a strong stake to the tree, and fasten the two together with a broad band in such a way as to make it impossible for the tree to be chafed when the wind blows. In the case of heavy soil

the tree should be planted as near to the surface as possible, the roots being barely covered with soil.

In planting strawberries the collar or neck of the plant must be only just below the ground. In this, as in all other cases, the roots must be carefully spread out, and not merely planted in a tangled mass.

There is no question that fruit trees, to succeed to the greatest advantage, should be planted on arable land, and not in grass. Grass within two or three feet of the main stem of a fruit tree has a very retarding effect. Not only does it lead to increased evaporation, but the grass itself absorbs moisture and nourishment at the expense of the vigour of the young tree. It is a good plan to keep the soil round fruit trees not only free from grass and weeds, but also hoed into a light pulverised condition, so as to maintain the warmth of the ground and to hinder evaporation.



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SEA KALE

THE PRUNING OF FRUIT TREES

THE pruning of fruit trees is important for several purposes. In the first place, by means of pruning fine and better fruit may be obtained, and a more even annual crop secured. Also the more regular development of fruit over the whole expanse of the tree may often be brought about, so that instead of producing fruit only at the top, as neglected plum trees often do, fruit branches may be made to develop throughout the full extent of the tree. Lastly, by means of pruning and training trees may be made to assume a form suitable to the space assigned to them, and thus the whole space of wall surface allotted to fruit trees may be profitably occupied. The tendency of nature, in the case of most fruit trees, is to produce a naked stem with a more or less crowded head. This, in horticultural practice, is rarely found to be the most advantageous form. Seeing that sap is drawn up by the leaves, it is necessary, in order to maintain an equal diffusion of sap throughout the whole of the branches of a trained tree, and to keep the wood of the latter, as it should be, perfectly symmetrical, to prune the strong branches short, whilst allowing the weaker ones to grow long. In other words, upon the more vigorous parts we must suppress the greater number of wood-buds, in order to deprive these parts of the leaves which these buds would have developed. We must remember that the fewer shoots upon the branch the fewer will be the leaves, and the

smaller the proportion of sap drawn to that part. On the other hand, allow as large a quantity of fruit as possible to remain on the strong side, while suppressing all but a little on the weak side, because fruit draws to itself the sap from the root and absorbs it in its growth. Thus the production of fruit tends to hinder the development of the strong side, which is what is required in the production of an evenly balanced tree. So far we have been speaking of the principles involved in producing a tree of symmetrical form; but the principal object of pruning is, undoubtedly, to induce the development of a maximum number of fruit buds. The first principle to bear in mind in pruning for this object is that the more the sap is retarded in its circulation the less wood and the more fruit-buds will be developed. It is wise to commence pruning fruit trees as soon as they are well in leaf. Take each branch issuing from the main stem and pinch off the point or end shoot of each branchlet which proceeds from it. The shoot at the end of the branch should, however, be left untouched. This pinching off should be practised as soon as the brachlet has five leaves developed on it, and should be done at such a point as to leave only three leaves on the branchlet. Every branch of the tree should be treated in the same manner, but the shoot at the end of the main axis of the tree should remain untouched. This process should be repeated through the summer as soon as any branchlet develops five leaves. At about the end of July the terminal shoots of each branch and of the leading stem are also to be pinched off. About the end of August the ends of all branches which have outgrown the average circumference of the tree should be cut back to an outside bud sufficiently to make the whole of the branches symmetrical, the lowest tier of branches being longest and the highest tier shortest. The central leading stem should at the same time be cut back to a

strong bud just above the point from which the highest branch proceeds. The effect of this system of pruning is to produce a tree consisting of a central main stem and of a series of tiers of branches proceeding from it, leaving no bare spaces from top to bottom. There will also be no crossing of boughs, no interlacing network of twigs, no hopeless tangle into which sun and air cannot penetrate, and the sap will have been induced to produce numerous fruit spurs along all its branches. If this method of pruning be regularly practised there will be little to do in the way of autumn or winter branch pruning. The advice just given as to pruning applies generally to standard and bush trees of Apples, Pears, Plums, and Cherries. There are, however, a few exceptions. In the case of the Apples known as Irish Peach and Beauty of Bath the terminal shoots of the main stem and the branches should be left untouched. The branchlets, however, should be treated as before advised. Once they have become established standard fruit trees require little pruning beyond keeping the centre of the tree open, and removing branches that cross each other. In all cases it should be remembered that the branches must be left so far apart that there is room for air and sunshine freely to pass throughout the tree. Peaches and Nectarines bear fruit principally on the young wood, and therefore summer pruning, as above described, would be altogether harmful in their case. The aims in pruning these trees, therefore, are to remove overlapping branches and to keep the proportion of new to old wood as great as possible.

Black Currants bear principally on young wood, and therefore old wood which has already borne should be pruned away hard—a considerable portion of it every year. In this way a succession of fresh shoots may be kept up year after year. Gooseberries should be pruned principally with a view of keeping the bush open, so that

the fruit may be easily gathered, and that sun and air may reach all parts. Hard pruning means large Gooseberries. Gooseberry bushes should be dusted with lime in the autumn, while wet, and should not be pruned till early spring. Red and white Currants should be treated by summer pruning, as advised above for apples and pears. The aim is to prevent young wood from extending, and to develop the formation of fruit spurs along the main branches.

Raspberry canes should be shortened to about six inches immediately after planting. The future pruning consists in cutting out the old canes, and cutting back the remaining fruiting canes to about two feet.

A good deal of summer pruning may be done by the thumbnail, but, as a general rule, a sharp knife or secateur is required. There is no necessity for the pruning knife to have the curved handle usually associated with this instrument. Of the two tools, the knife is, on the whole, to be preferred, as it makes a cleaner wound, and the amputation can therefore be made nearer to the bud. In shortening a branch, the pruning knife is placed exactly opposite to a bud, and the cut is made in an upward slanting direction so as to come out a little above the bud.

Every two or three years, bush trees of Apples, Plums, Pears, and Cherries should be subjected to what is known as root-pruning. The object of this process is, by removing taproots, to check undue luxuriance of growth in the tree, and so, for the reasons already stated, to lead to the formation of fruit buds. The ordinary method of root pruning is as follows:—At a distance of two to three feet from the main stem dig a trench about two feet deep, and then lift the tree with its mass of fibrous roots spreading in all directions, being careful to avoid injuring them. All strong roots which are striking down into the subsoil should be

carefully cut off with a sharp knife. Any of the surface fibrous roots which have been bruised or damaged should also be neatly cut, and before the tree is put back again, the soil should be thoroughly dug up and pulverised to a depth of at least two feet. Nothing keeps the roots near the surface so well as does a deep and well-cultivated soil. Nothing causes roots to descend so much as does a dry, hard soil.

STRAWBERRIES

STRAWBERRIES are of easy culture, and succeed with reasonable care on almost all kinds of soil. The land should be well and deeply dug, and heavily manured previous to planting. Heavy dressings of farmyard manure are especially important in the case of light soils. On light soils a dressing of marl is also of great value. The crop should not remain on the ground for more than three years, and of these, the first is practically unproductive. The runners or young plants should be purchased in August and planted ten inches apart. At the end of the first year, every other plant should be removed, and may be planted elsewhere. The ground should be kept well hoed on the surface and free from weeds. As soon as the flowers are developed, a mulching of strawy manure or plain straw should be placed between the rows or round the roots to preserve the fruit from dirt. After the fruit is gathered, the straw may be removed and the new runners should be cut off. If it is intended to raise new plants, get a number of small pots, fill them to the top with good loamy soil, and place these pots round the plants from which the runners are intended to be obtained. About the end of June the plantlets should be directed into the pots and pegged down with wooden pegs. They will soon take root, and may then be separated from the parent plant. Good varieties of strawberries are Black Prince, which is early; British Queen, Doctor Hogg, and Latest of All, which are three kinds of excellent flavour; Royal Sovereign, which is a good cropper; and Gunnersbury Alpine and St Joseph, which are perpetual varieties.

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LONDON PRIDE

FILBERTS AND COB-NUTS

FILBERTS and Cob-Nuts thrive especially in soil which is known as "stone-shattery" land—that is, land which consists of a mixture of loam and stone detritus. But good crops can be raised on most soils. In any case the ground should be trenched and well manured previous to planting. Dwarf trees with stems about two feet high are best for planting. From these central stems branches are trained to form a tree about eight feet in diameter and five feet in height. By pruning, the trees are kept well open and more or less basin-shaped. The trees bear two forms of flower, one, the male, in the form of cylindrical grey catkins bearing the pollen, the other, the female, in the form of a little reddish tuft at the summit of a large bud. The removal of either of these flowers is fatal to the crop. Their appearance should therefore be waited for, and pruning should then consist in cutting back the branchlets to just beyond the last catkin or female flower.

THE CULTIVATION OF VEGETABLES

Peas

Garden Peas are of easy culture and are among the most important vegetables grown now in gardens.

There is no longer any excuse for growing the small whitish early Pea which used to be seen in gardens, but is now more often grown as a field crop. Only Peas possessing the true marrow flavour need be grown, and the quality of the two classes cannot for a moment be compared.

A light soil is preferable, particularly when earliness is desired, and the soil should be moderately rich, although a very rich soil tends to produce too much leaf and too little fruit.

The first sowing of Peas may be made in the open about the end of February providing the soil is not too wet or frost-bound. A warm situation should be chosen for this crop, preferably under a wall facing south. For this earliest crop any of the following varieties should be selected :—

Chelsea Gem, Sutton Seedling, Carter's Early Morn.

Where the soil is not very good it may be removed to a depth of two or three inches and replaced by old soil, from a hot-bed. In any event the soil should be deeply dug and moderately manured the previous autumn. The seed should be sown in drills about three inches from seed to seed. They should be staked immediately they appear above ground. A sowing of second early Peas should be made in April. For this sowing the ground

may be richer than in the case of the earliest crop. It is a good plan to have a liberal amount of well-decayed manure about five or six inches below the surface. Between the rows about three feet should be allowed, or in the case of the taller growing kinds, four or five feet.

Among the varieties suitable for Second Earlies are :—

Stratagem, Majestic, and Duke of Albany.

About three weeks later main crop Peas are to be sown, good varieties being :—

Eureka, Satisfaction, Best of All, and Autocrat.

For the latest Peas of all, Ne Plus Ultra, Sutton's Late Queen, and Reading are perhaps the best varieties.

It is not much good sowing seeds after the end of June. As soon as the seeds are sown it is wise to place pea guards or galvanised wire netting over them in order to protect them from birds. In dry weather it is most important to supply the growing crop with plenty of water, a good plan being to open a shallow trench about a foot distant from each row, and to pour water into this so as to fill the trench. The surface soil between the rows should not be allowed to become caked and hard, but should be kept friable by means of the hoe.

Broad Beans

Broad Beans do best in a deep, rather stiff soil, which should be well manured the previous autumn. The earliest crop may be sown in November, Mazagan being a good variety for this purpose. Giant Long Pods may be sown in February or March, and in the following month one of the Broad Windsor types should be planted.

The seeds should be sown in single rows about nine inches from seed to seed. Beyond keeping the surface of the soil friable by the occasional use of the hoe, little in the way of subsequent cultivation is necessary.

French Beans

The Dwarf Kidney Bean or French Bean may by good management be made to provide a supply of vegetables from June till October. They require a deep rich soil and plenty of moisture. An open situation is desirable.

The first crop should be sown about the middle of April under a wall facing south. Later sowings should be made at intervals of a few weeks well into July. The earliest crops may require protecting from frost by means of boughs or mats. The seeds should be sown in drills at a distance of about four inches from seed to seed. The plant may require a little subsequent thinning so as to allow each plant room for proper development. For the earliest crop Ne Plus Ultra is a good variety, while for later crops Triumph, Perfection, and Canadian Wonder are among the best kinds. It is a good plan to bury a liberal amount of manure about six inches below the surface of the ground, and during the summer to dig a shallow trench for watering purposes, as in the case of Peas.

Runner Beans

These are cultivated in much the same manner as Dwarf Beans, but at least six feet should be allowed between the rows. Climbing French Beans may be sown at intervals from the end of April onwards, and Scarlet Runners from the first week of May. Runner Beans do not bear cold. Of climbing French Beans, good kinds are Earliest of All, Ten Weeks and Tender and True. Good Scarlet Runners are Painted Lady, Chelsea Giant, Mammoth White and Best of All. All Runner Beans should be provided with tall poles up which to climb.

Potatoes

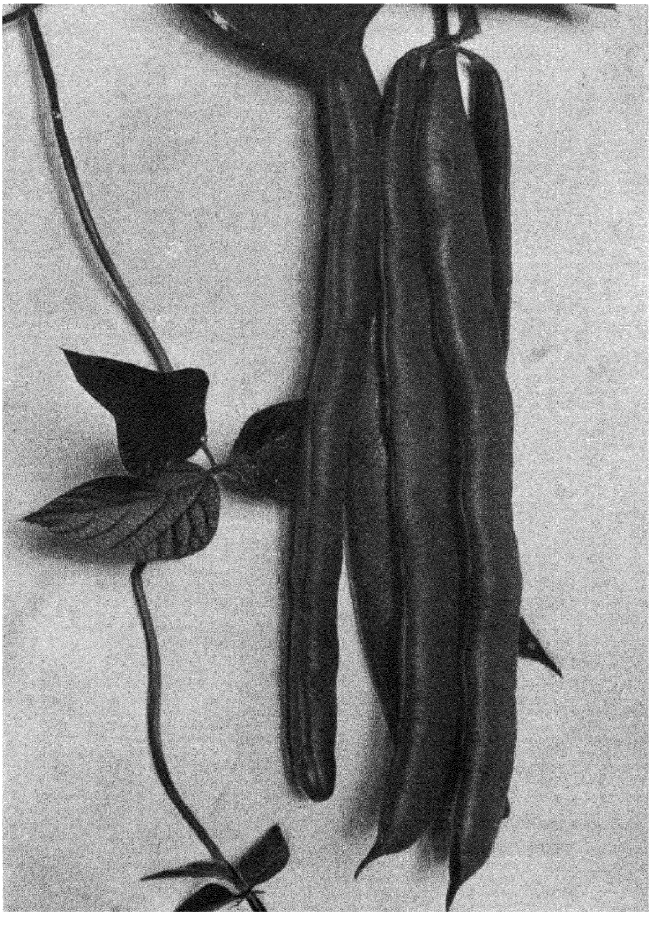
Potatoes like a deep loam of moderate friability which has been well manured before winter. For the earliest crop a south border should be chosen, preferably under a wall. Early in March a few tubers may be planted, drills being drawn with a hoe, mattock or light spade, about four or five inches deep and about two feet between the rows. The tubers should be planted at distances of about one foot, though much depends on the variety. The later varieties require more space than the early ones. For earliest crops Myatt's Ashleaf, Ninetyfold, and Sharp's Victor are all good. Midseason varieties should be planted about the middle of April, Windsor Castle, Sutton's Supreme, and Schoolmaster being among the best. Late varieties should also be planted in April. Among the best of the late varieties are King of the Russets, Up to Date, Magnum Bonum and Bruce. When the plants are about three inches high the first earthing up should take place, and this should be continued at intervals of a fornight until the haulms have grown to a good height. The tubers should not be dug up until the tops are quite dead. They should then be dried by exposure to the sun for two or three days, and stored in a dry place. Examine them frequently in order that any diseased ones may be at once removed. Frost is fatal to potatoes, and it is therefore wise to give the young crop some slight protection until the middle of May by means of a little dry litter placed over them.

Turnips

With care Turnips may be had the year through. Small sowings and often should be the rule, although it is no use sowing after May until the early part of

August. The earliest sowing should be made in a warm, sheltered situation, though not with full exposure to the sun. A little seed may be sown in February, Carter's Early Forcing being a good variety for this purpose. The ground should be kept covered at night by straw covers or dry litter. For second crops Snowball and White Gem are good, and these should be followed by Red Globe and Matchless. For early autumn Turnips, Red Top, Mousetail and Veitch's Red Globe are excellent, whilst for mid-winter, Orange Jelly, Golden Ball and Chirk Castle are very hardy. The soil for Turnips is preferably a light sandy loam, well enriched with manure, some months before the crop is to be sown. The soil should be as fine as possible before the seed is sown. Seed should be sown thinly, one ounce being sufficient for a drill of a hundred and fifty feet. It should be sown about one inch deep, and from six to twelve inches should, in the final thinning, be allowed from root to root. The drills should be about fifteen inches apart. It is necessary to keep the crop free from weeds, and water should be given in dry weather. Hoeing between the rows is very advantageous, and early thinning should be practised if good roots are to be obtained. Most growers are afraid to thin their Turnips sufficiently. They should bear in mind the Norfolk proverb, "No man should hoe his own turnips."

In order to preserve Turnips in winter the ground should be kept covered with leaves or litter directly frost sets in. It is a good plan to take up at any rate a portion of the crop at the commencement of winter and place them in a deep drill with their leaves only above ground. Turnips stored in this manner are far better than those which are packed up in a heap and allowed to ferment.



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RUNNER BEAN "DELICATESSE"

Parsnips

When properly grown the Parsnip is by no means the coarse, tough root which we so often see. They should be quickly grown, and only to such a size that they can be cooked whole. They like a deep, rich, friable soil. Seed should be sown early in May, in drills fifteen inches apart. One ounce is sufficient for a hundred feet. The seedlings should be early thinned, the final distance between plant and plant being from nine to twelve inches. Those roots intended for winter use should be left in the ground, but a little protection in the form of litter or straw mats should be given them.

Carrots

Carrots thrive best on a light soil, which has been manured for a previous crop. A small sowing should be made in a sheltered spot early in March, Scarlet Horn or Sutton's Gem being suitable for this purpose. A second sowing of the same varieties may be made in April, and a third sowing early in May. For the latter the Scarlet Intermediate is an excellent variety. It is a good plan to make a further small sowing in June of the early Nantes variety. These roots will come in early in the new year, when vegetables are scarce. An ounce of carrot seed is sufficient to sow eighty feet of drills. These drills should be about fifteen inches apart, and about six to eight inches should be allowed from plant to plant after the final thinning. Crude stable manure is not good for Carrots; at the same time the soil must be rich, as the growth has to be made in a short time. The soil from a cucumber frame is excellent.

Beetroot

Beetroot does best in a deeply-dug friable soil which has been well manured for a previous crop. Any manure which is added at the time of sowing should be buried about nine to twelve inches below the drills. An ounce of seed will sow thirty feet of drill, and the drills should be about a foot apart, six to nine inches being allowed from plant to plant after thinning. About the end of April or the first week in May is the best time for sowing, and a small further sowing may be made in August. Cheltenham Greentop, Crimson Ball and Sutton's Globe are among the best varieties. At the beginning of December take up all roots that remain, and bury them in sand or ashes in alternate layers under cover, care being taken not to bruise or cut the roots.

Jerusalem Artichokes

This is probably the easiest of all vegetables to grow. It should not be grown in the same soil year after year, but should receive good culture and an annual change of land. It likes moderately rich soil, and plenty of space. The roots should be planted about six inches deep in rows four feet apart. February or March is the best time for planting. The roots should be left in the ground until required for use. Veitch's Improved is one of the best varieties.

Chinese Artichokes

The Chinese or Japanese Artichoke is as easily grown as the Jerusalem. It is a valuable winter vegetable, and is worthy of better cultivation than it generally receives. The soil should be well dug and moderately

manured in autumn. The tubers should be planted in March in drills about six inches deep, eighteen inches being allowed between the rows, and six inches between the plants in the row. In the summer it is desirable to give abundance of water. In well-drained soil the tubers may remain in the ground all the winter till required. In the case of heavy soil they may be lifted in November, and stored in a cool shed, but the light must be absolutely excluded, and therefore it is desirable to cover the tubers with dry sand.

Onions

Onions can only be grown well in a rich and deeply-dug soil, which has been well manured the previous autumn. Just before sowing it is a good plan to fork in a liberal dressing of soot and wood-ashes, and it is desirable to scatter a good dressing of the same mixture broadcast over the bed two or three times during the period of growth. Seed should be sown thinly, about one ounce being sufficient for two hundred feet of drill. Early in March the seed of spring Onions should be sown in drills about a foot apart, the ground being rolled or trodden immediately after sowing. It is a good plan to cover the seeds—that is to say, to fill up the drills—with soil from an old cucumber bed. The young plants should be thinned out, as soon as they are large enough, to from six to nine inches apart. The ground between the rows should be kept ruffled with the hoe. By the end of August, when the growth will have been completed, any plants in which the foliage is still erect should be bent over. About the third week in September the Onions should be taken up and hung in string bags in a dry room. About the end of July a sowing may be made of such a variety as the White Leviathan. These will be valuable early in the following

summer. Other varieties suitable for autumn sowing are White Queen and the small silver-skinned varieties. These should be left in the seed-bed till early in March, when they should be planted out in rows twelve to fifteen inches apart.

Salsify

Salsify needs much the same cultivation as Carrots. Seed should be sown in April in drills about a foot apart, the seedlings being ultimately thinned so as to allow about twelve inches from plant to plant. The ground between the rows should be kept hoed.

Shallots

Shallots like rich, well-dug soil, though they are of easy culture, and will often thrive where Onions fail. The roots should be planted in rows about twelve inches apart, six inches being allowed from bulb to bulb. They should be planted so that their top just shows above the level of the ground. March is the best time to plant, and the crop will be ready for gathering about the middle of August. They should be dried and stored after the manner of Onions. Sutton's Giant is perhaps the best variety.

Garlic

Garlic should be cultivated exactly as Shallots, and the produce should be dried and stored in the same way.

Asparagus

Deeply-dug and well-manured soil is essential for the production of good Asparagus. It may be raised from

seed, or more quickly from two-year-old roots. If plants are to be raised from seed, drills an inch deep should be made about fifteen inches apart, and the seed sown thinly about the middle of April. The seedling plants should be thinned out to six inches apart as soon as possible. These roots will be transplanted into permanent quarters the following spring.

In preparing a permanent plantation a trench should be made four inches deep and eight inches wide; into these the roots should be placed about two feet apart; three feet should be allowed between the trenches. For the first year or so none of the shoots should be cut, but in the third season shoots may be cut as they appear in the spring, and cutting may be continued until the middle of June. At this period a liberal top-dressing of manure should be given, and no more shoots should be cut.

Globe Artichokes

The Globe Artichoke is cultivated for the sake of its flower heads, the fleshy base of which is cooked and eaten when mature. They do best in deeply dug land with which a heavy dressing of manure has been incorporated. Fresh plants should be used every three years. The stock may easily be increased by root division in the spring. The suckers are taken from the plant when about eight to ten inches long, the stool of the old plant being carefully uncovered so as to enable the young growth to be taken away with a heel—that is, a small portion of the old plant attached. The suckers are planted in rows, three feet being allowed between the rows, and half that distance between the individual plants. The young plants are to be watered freely. At the approach of frost the old stalks should be removed, yellow leaves entirely cut away, and a top-

dressing of dry litter placed over the roots and round the stem. The heads should be gathered just before the central scales begin to unfold and while the outer ones are still plump and fresh. In the autumn a good dressing of manure should be laid on the surface of the ground between the two rows.

Celery

Celery should be sown in March in gentle heat, and as soon as large enough to handle the young plants should be pricked out in boxes or small pots. When about two inches high they should again be transplanted, being kept in a cool glass-house or other fairly warm place until May or June. They should then be planted out in trenches as advised for Leeks, and in August should be earthed up in the same manner. The final earthing up should take place about the end of September, and about a month later the crop will be ready for gathering. If it is wished to keep the Celery through the winter it must be covered with litter or dry leaves during frost. It is impossible to give too much water during the summer months.

Good varieties are Sandringham and Major Clarkes.

Celeriac

Celeriac or turnip-rooted Celery is much easier to grow than Celery, and is one of the most useful of winter vegetables. It is valuable for soups and as a boiled vegetable, having a flavour intermediate between that of Celery and Salsify. The seed may be sown in March in heat and the seedlings subsequently transplanted, though the easiest method is to prepare trenches about six or eight inches deep, half fill them with well-rotten manure, thoroughly mix this with soil, lay on it a layer

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NIGELLA "MISS JEKYLL"

of two inches of fine soil from an old cucumber bed, and on this sow thinly a row of seeds about the middle of April. The seedlings should be thinned out to about a foot apart. Too much water cannot be given. About the middle of July the soil on either side should be earthed up round the plants, and in October the roots are ready for use. If covered with a little bracken or litter the roots may be left in the ground throughout the winter, and may be dug as required.

Among the best varieties are the Giant Prague and the Erfurt.

Leeks

To have any value, Leeks must be well grown. Small weedy Leeks are not worth having, and in order to obtain the thick, succulent vegetables which alone are desirable, a deep rich soil and careful cultivation are required. Seed may be sown in a warm border or under glass in February. The plants should be well hardened by the end of April, when they should be planted out in trenches prepared by digging out soil a foot wide and a foot deep, and half filling the trench with well-decomposed manure, the whole being well mixed into the soil at the bottom of the trench by digging. Eighteen inches should be allowed between the drills and one foot from plant to plant. Water should be liberally given, and from August onwards the Leeks should be earthed up to blanch the lower part of the stem. Frost has no ill effect on the plants—indeed, it seems to improve the flavour. Among the best varieties are Musselburgh, Lyon, Holborn Model, and London Flag.

Rhubarb

Rhubarb requires a well-manured and deeply-dug soil,

but it is easily grown in any garden. It is increased by root division just before growth is active in the early spring. Each portion of root detached must have a crown or bud, and the roots should be placed below the surface, so that the crown is quite covered with soil. At least three feet must be allowed from plant to plant. No stems should be cut during the first season. Rhubarb is a plant which cannot be given too much water. The old way of forcing is the best. This consists in covering over the plants early in the year with pots surrounded by warm litters. Victoria, Sutton and Royal Albert are among the best varieties.

Cardoons

The cardoon is not so much grown in England as on the Continent, though it is a handsome and useful vegetable. It is the stalks of the plant that are eaten, and these need to be blanched like Celery. It requires plenty of room for development, and is therefore out of place in a very small garden. A rich, well-drained soil is required. Seed may be sown early in April, in a cold frame. It is better to sow in small pots, two or three seeds to a pot. As soon as the seedlings are well above the soil they should be thinned till only one, the finest, remains in each pot. Plenty of ventilation should be given, and the plants should be planted out in June. Trenches should be prepared, twelve inches in depth, and below this should be placed a layer of manure to a depth of a further six inches. On the manure should be laid two inches of soil, and on this should be planted the young Cardoons. Eighteen inches should be allowed from plant to plant, abundance of water should be given them, and about the middle of October the lower small yellow leaves should be cut away, the remaining branches should be secured in an upright position, and the lower

part of the stalks be bound round with hay-bands. The Cardoon is available as a vegetable from October till March.

Cucumbers

Cucumbers are best grown in frames, though where a frame is not available useful ridge Cucumbers may be grown out of doors in warm positions. In growing Cucumbers out of doors one or more holes two feet deep and two feet square should be dug and nearly filled with half-rotten stable manure. On this should be placed about four inches of fine rich soil. In this soil about one inch deep five or six seeds should be sown in May, and until the plants appear the spot should be covered by an inverted box or tub. Only ridge varieties should be grown in this way. Frame Cucumbers should be sown about the middle of March in pots of fine soil placed on a hot-bed in a frame. As soon as the seedlings have four or six leaves they should be transplanted to the soil on the hot-bed of itself. Two or three plants are ample for an ordinary frame. Careful ventilation during the day-time and generous watering through the summer months are the chief points in cultivation. There are many good varieties, Sutton's Matchless and the Old Telegraph being as good as any.

Vegetable Marrows

Vegetable Marrows may be grown exactly in the way advised for ridge Cucumbers. Seed may be sown directly into the beds in May, but it is better to sow in heat a month earlier, and transplant at the end of May.

Green Crops

Cabbages, Broccoli, Cauliflowers and their kind require more than perhaps any other vegetable liberal treatment

if the best results are to be obtained. It is true that Cabbages can be and are raised under almost every condition, but to grow them well deeply worked and thoroughly enriched soil is necessary.

Cabbages

A full supply of Cabbage may be had from January to December if proper varieties are selected and the sowing be successional. They like best a rather heavy soil, but in any case the ground must be heavily dressed with manure a few months previous to planting. The seed should be sown in beds in an open spot. The ground should be thoroughly broken up and the surface levelled. The seed should be sown in drills one inch deep, the drills being about eight inches apart, and as soon as the young plants are above ground hoeing should be practised between the rows. The seed is commonly sown much too thickly, but it is most important to allow room for each seedling to develop. When they are about five or six weeks old the seedlings will be ready to plant out into their permanent quarters. In planting out the hole should be made for each plant by means of a round-pointed stick, eighteen inches being allowed from plant to plant, the rows themselves being about two feet apart. The ground should be thoroughly soaked with water immediately after planting, and during the first week abundant water should be given morning and evening. The surface of the ground between the rows should be kept ruffled by means of the hoe. For the earliest spring Cabbages, small sowings should be made from the middle of July till the end of August, Ellams and Dwarfs early spring being reliable and of good flavour. These early sown plants should be planted out about the end of September, the ground being made thoroughly firm after planting. For autumn supply the Rosette and

Hardy Green Coleworts should be sown, a little every week throughout May and June. These give nice heads from September to December. The period between the spring and autumn supply may be occupied by such excellent summer Cabbages as Kelway's Placebo, Sutton's Favourite, and Matchless. These should be sown from April till the end of May. Winter Cabbages are particularly useful. For use in mid-winter the St John's variety should be sown in June or the last week in May. Other varieties which will carry on the supply from Christmas till spring are the Christmas Drumhead and the St Martin. These should be sown at intervals from the middle of May till the end of June. Red Cabbages for pickling are cultivated in the same way as other Cabbages. They are best sown in March for pickling in the autumn. If quality rather than size is desired the Dwarf Blood-red is an excellent variety.

Broccoli and Cauliflowers

The soil for these crops should be prepared in the same way as advised for Cabbages in general. They are, of course, less hardy than the other members of the cabbage family. Still, with a little care one or the other of them may be had at most seasons of the year. Self-protecting autumn Broccoli and the early Cape Broccoli should be sown in April and early in May for a supply from September to Christmas. For a mid-winter crop, which, of course, is liable to be destroyed by severe frosts, the Penzance and the Sandringham Winter White are among the hardiest kinds. Spring Broccoli should provide a supply from March till June. For this purpose seed should be sown of Carter's Champion, Cuttell's Eclipse, and Late Queen should be during late May and early June.

Cauliflower is even more tender than Broccoli. It

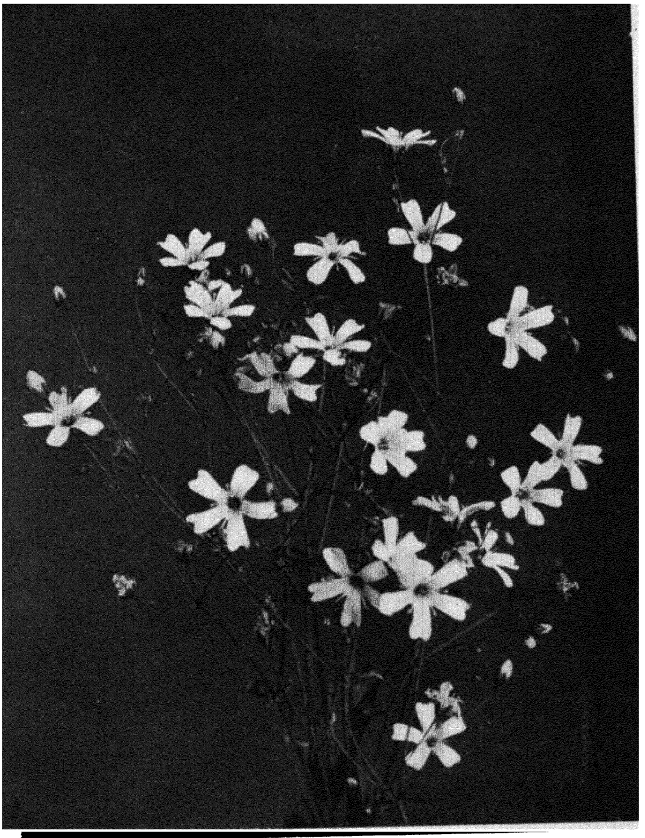
provides a supply during the summer and early autumn. The Walcheren and Early White London should be sown at the end of July or early in August, the plants being pricked out about four inches apart in cold frames. These plants should be set out early in April in their permanent quarters. They should be protected by a *cloche* or hand-glass at night time till all danger of frost is passed. To follow these such varieties as the Erfurt and Pearl may be sown in the open during March and April, and planted out during May and June. Autumn kinds, such as the Autumn Mammoth and Dwarf Mammoth should be sown early in April. Both Cauliflowers and Broccoli should be liberally supplied with water during growth.

Borecoles, or Kales

The great usefulness of this vegetable consists in its hardiness, and in the fact that it furnishes a continuous supply of greens through the winter Sprouts may be cut from October to April, if seeds of suitable varieties be sown at intervals from March to May. For earliest cutting Dwarf Green Curled may be sown in March and the seedlings transplanted in May. For mid-winter Sutton Curled Scotch may be sown early in April and transplanted early in June. For later crops Cottagers' Kale may be sown in May and planted out in July. The seed-bed should be finely worked, but should not be too rich, but the ground for the permanent plantation can scarcely be too rich. Plenty of room must be allowed: between the rows there should be not less than two feet six, and the plants should be not less than two feet six in the rows.

Savoys

Savoys are generally valued not only on account of



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GYPSOPHILA ELEGANS

their delicate flavour, but also on account of their furnishing a useful dish in the winter when vegetables are scarce. The seed should be sown early in the spring, and the seedlings planted out during June and July. Good varieties are the Green Curled and Tom Thumb. By sowing such a kind as the Bijou in May Savoys may be obtained well on in the New Year.

Brussels Sprouts

This is one of the most useful forms of greens, and one of the easiest to grow; it should, however, not be grown in very heavy soil, unless it has been liberally dressed with lime or burnt earth. The seed should be sown in March on a warm border or in February under glass. As soon as the fourth leaf shows, the seedlings should be transplanted to their permanent quarters. This should not be later than April. In this way the seedlings get a good root hold before the heat and drought of summer. Two good varieties are the Sutton Matchless and the Dwarf Gem.

Spinach

This vegetable deserves to be more generally grown, as it is of easy culture and rapid growth. The soil should be deeply cultivated and tending towards heaviness. Ground sloping towards the south is not desirable. The seed should be sown in small successive batches. Sowings may be made every three weeks from February till May, the early sowings being made on a south border, the later ones on a border facing north. The ground should be rich, as quickness in growth is essential. The seed should be sown thinly and the young plants should be thinned out to six inches apart as soon as possible. The rows should be one foot apart. Two good varieties are the Carter and the Prickly Flanders.

Sorrel

Although Sorrel grows with ease, however neglected, it is well worthy of careful culture. It is best multiplied by division, as seedlings tend to revert to the wild type. The plants should be divided just before growth commences in the early spring. Two feet should be allowed from plant to plant, and it is a good plan to keep two or three small beds going, and every year to plant a new one and destroy the roots of the others. If raised from seed Sorrel should be sown early in spring, say about the second week in March. It should be sown in drills about two feet apart. The plant should be ultimately thinned so that there is at least eighteen inches between the plants in the rows. Seed sown in March will yield leaves fit for cutting about the middle of May. The large leaves should be picked first, thus allowing the smaller ones to grow.

Horseradish

Horseradish is of very easy culture, and for this reason is very badly cultivated. As it will grow anywhere, it is allowed to grow wild in any out-of-the-way corner. Still there is no comparison between roots thus grown and those cultivated in a proper manner. A trench about eighteen inches deep should be taken out, and a good layer of manure placed at the bottom. An inch or two of soil should be placed on this and crowns of horseradish planted nine inches apart thereon. All small fibrous roots should be cut off before planting, and the trench should be filled in with light soil, the lower six inches being moderately rich, the top six being as poor and light as possible. In two years good sticks will be ready for digging.

Radishes

Radishes require a soil which is deeply cultivated and rich without being rank. A soil which has been heavily manured for a previous crop is therefore desirable, and it is always advantageous to add a little lime to the soil. The great thing is to sow thinly, and, further, to set out the young seedlings as soon as they appear. The seed should be sown at intervals of a week or two from February to May. In dry weather water should be given.

Lettuces

Lettuces should be sown in light, moderately rich soil at intervals of a fortnight from the middle of March to the beginning of August. As soon as they are able to be handled a vigorous thinning should be practised, the young plants removed being transplanted into rich, finely cultivated beds, a distance of about nine inches being allowed from plant to plant, and too much water cannot be given during the summer months.

Parsley

Parsley is easily grown on light soils, but it is useless to attempt its cultivation in heavy ground unless plenty of sand or lime is mixed with the soil. Small sowings should be made in March, May and July, and as soon as the seedlings have four or five leaves they should be thinned out to six inches apart.

Mint

Mint can be grown in any rich, moist soil, it will not thrive where the soil is dry and poor. All that is neces-

sary is to plant the roots about three inches deep and three inches apart in rows, about nine inches being allowed between the rows. Mint should be given plenty of water through the summer.

Sage

Sage will grow in almost any soil, but it prefers a deeply-dug, well-manured, somewhat dry soil, and a sunny situation. Seeds may be sown in April, the seedlings being transplanted as soon as large enough to handle and planted into their permanent quarters in the autumn, or cuttings may be taken in the spring and planted in rows a foot apart, a foot also being allowed from cutting to cutting.

Thyme

Thyme will not grow in a heavy soil, it likes a light, well-drained soil and sunny position. Seeds may be sown in April or old plants may be divided up in the same month; in any case a foot should be allowed from plant to plant.

A FEW USEFUL RECIPES

Weeds on Paths

If a path is well made, having a good stone foundation, and the crevices filled with cinders, coal ashes, and such material, weeds will rarely give much trouble. When they have appeared, however, they may be got rid of by the application of either of the following liquids :—

1. One pound of salt dissolved in one gallon of water. This liquid is to be applied as hot as possible by means of a watering pot.

2. Place a pound of powdered arsenic in three gallons of cold water, boil, and keep stirring; then add seven gallons of cold water and two pounds of crushed soda.

3. One ounce of carbolic acid in a gallon of water.

To prevent Nails and other Iron-work from Rusting

Mix together two ounces of black lead and a pint of linseed oil. Heat the nails to red heat and dip them in the mixture.

To get rid of Ants

One of the simplest ways of destroying ants is by watering the path or other part infested by them with carbolic acid and water mixed in the proportion of one ounce to a quart. Care should be taken that this liquid does not come into contact with the roots of living plants or they will certainly be destroyed. If the ants have formed their nests at the root of a plant they may

be destroyed by pouring on them a quart of warm water in which a piece of camphor the size of a filbert has been steeped.

To destroy Greenfly

The plants in a green-house or room which have become infested with green-fly are best treated by means of tobacco juice or smoke. The plants should be quite dry, and should be placed close together. In an iron pan should be placed a few red-hot cinders, upon these should be placed some tobacco, and the plants left in contact with the fumes for an hour or more. Instead of the smoke a liquid may be prepared by steeping four ounces of shag tobacco in a gallon of hot water, to which a little size has been added. The plants or shoots affected should be dipped in this liquid, or, if this is impracticable, the liquid may be syringed over the affected parts.

Snails and Slugs

The best way of getting rid of snails and slugs is to look for them an hour or two after dark with the aid of a lantern, and crush with the foot when found. During dry weather crops may be protected by dusting the surface of the ground with soot or lime, but these are quite useless directly they become at all damp.

Worms on Lawns

Worms on lawns are most easily dealt with by sweeping the lawn with a rough broom and then strewing the surface with an equal mixture of salt and soot, at the rate of fifteen bushels to the acre. An acre contains 4840 square yards.

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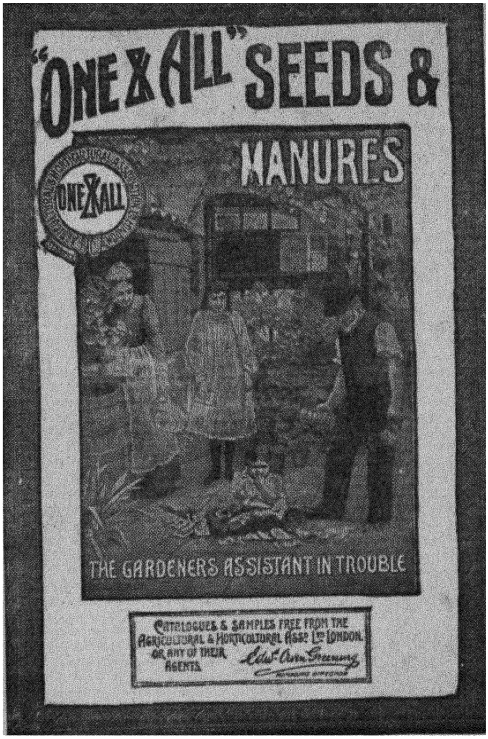
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